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Report on the Island of Chedooba

History

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REPORT ON THE ISLAND OF CHEDOOBA.

BY

EDWARD P. HALSTEAD, Esq.

Commander of her Majesty's Sloop 'Childers.'

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[For much of the information under the head of History, Police, Revenue, Manners and Customs, I have been indebted to the kindness, and long residence in the country of Captain D. Williams, Senior Assistant Commissioner at Ramree.]

DIVISION I.

General Appearance, History and Division.

The Island of Chedooba measures 15¼ miles in length, viz. from 18° 40′ to 18° 55′ 30″ N. Latitude, and 17 miles in width, viz. from 93° 30′ to 93° 47′ E. Longitude, and shews on the map as a square the S. W. angle of which has been reduced. With its dependency of Flat Island on the South Coast, it covers an area of about 200 square miles. Its general appearance and character is that of a fertile well wooded Island of moderate height, and irregular outline. A band of level plain, but little raised above the sea, extends around its coasts, of far greater width on the East than on the West; within this lies, irregular, low, undulating

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hills, varying in height from 50 to 500 feet, enclosing several higher detached mounds of steep well wooded sides, the loftiest of which, near the south part of the Island, rises nearly 1,400 feet.

The view from the top of these higher summits, presents, immediately below a scattered irregular mass of hills, confined principally to the western part of the Island, covered with jungle, interspersed with grass plains of more or less extent. To the Eastward a broad flat plain intersected with patches of jungle; and surrounding all, lie the cultivated rice fields with the different villages on their verge nearest the sea, the coast of which to the Westward is every where strewed with broken and detached masses of rock jutting far out.

The History of this Island is involved in all the obscurity which at present surrounds that of the neighbouring Continent. Under the name of Junon it constituted in the time of the Mug Rajahs, one of four divisions of a province known collectively with the other three, Arracan, Ramree, and Sandoway by the name of 'Preegree.'

The head authority in each division was then called 'Jah,' and was nominated every three years, to prevent any attempt at independence of the supreme power by the Rajah of the Province, a matter not difficult in time of oppression, confusion, and general disorder.

On the conquest of the Province by the Burmese in 1784. its divisions were still retained, but their names, as well as that of the collective Province were all changed. The latter took the name of 'Lemroo,' instead of 'Preegree,' while the name of Chedooba itself was changed from Junon to 'Mekawuddee,' and its revenue assigned to the support of the King's eldest sister, condemned to perpetual celibacy, as being unable to obtain a helpmate for her.

The alteration in the names of the Province and its divisions was acompanied by a change in those of the authorities. The provincial Governor was called 'Lemroowrain' or Governor of four countries, a title still given to our Commissioner, while 'Junroowun' took the place of 'Jah,' as designating the head of each division, and is now applied by the inhabitants to the assistant commissioners.

The division of the Districts into Pergunnahs was also left undisturbed by the Burmese, and the head man of each, under the Mug Raj continued to be called 'Soogree.'

Of these Pergunnahs or circles with their Soogerees, Chedooba is divided into seven, viz: Kamman, Krae-rone, Inrooma, Ineubreng, Kyouktan, Tang-roa, and Ree-yueng, the latter its dependency of Flat Island, on its southern coast.

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Of these circles, Kammaa and Tang-roa, which divide the whole western, southern, and part of the northern portions of the Islands, are the most extensive, but least populous, Kyouktan the smallest in extent. The other three the most productive and populous, and Ree-qyueng the best cultivated.

Division II.

Population—Revenue—Police.

The population of Chedooba may perhaps, comparatively with the neighbouring countries, be looked on as large, by the census of 1839-40 amounting to 8,534, and when it is considered that this population is confined to the strip of cultivated land surrounding the Island, at least that portion of the Island will be esteemed to have a fair share of inhabitants. No great increase from census to census is at present observed, but as I was informed that formerly the Island possessed a far denser population, evidence of which was afforded in the amount of land now waste, which had formerly been cultivated. I have no doubt that the effect of its present state of comfort and peace must soon develope itself in a large increase of inhabitants, who I was informed by one party were so numerous before the Burmese invasion that famine was sometimes the consequence of the inability of the Islands to support them, a statement I think not to be entirely depended on. As there is but little influx or efflux of strangers, the census from year to year, if correctly taken, presents the changes occurring among the actual Islanders. But from what I saw, and from a portion of the revenue being derived from a poll tax, I incline to think it is greater than the returns shew.

With exception of a very small community of Burmahs lately established on one of the eastern villages the whole population is Yug. Their account of themselves is that they are descendants of parties who originally used to cross to the Island from the mainland and Ramree to cut wood, and who eventually and slowly settled on it.

For sometime subsequent to the English possession of the country, considerable complication prevailed in the district, and partially in Chedooba owing to the mutual ignorance of the governors and governed.

The mistaken Revenue system introduced in 1827 and 1828, have been replaced by an equitable and judicious taxation: its present result is content, happiness,and peace, its future in all probability an increase in all these, in addition to opulence and prosperity. The revenue is raised from

the produce of the land, and from a light poll tax. There are no difficulties found in its collection, nor oppression resorted to; about 25 per cent. is absorbed by the payment of the collectors, the ordinary native authorities. The Soogree of each circle receives 20 per cent. on his collection, the Ruagon or head villager, 4 per cent., and the Ruacharee or Village clerk, assistant to the Ruagon, 1 per cent. These are also exempted from all taxes.

Besides the above, there are two or more officers in each village called Leedo-gongs, or heads of men, whose negative payment consists in exemption from taxation.

There is a native Police taken from among the people. Their duty consists in maintaining peace and quiet among the villagers, for which purpose some shady tree or bamboo clump is selected in the centre of each village, supplied with a bench and sort of small hut, where day and night, the Leedo-gong sleeps his watch. In fact in Chedooba his office is a sinecure, theft or plunder are not known, the men are too good humoured to quarrel, and I was told that the only call ever made on him, was one only occasionally to settle the few little amiable differences sometimes occurring among the ladies of his jurisdiction.

At the Town of Chedooba there is a small Sepoy Police, their business is to keep up communication with Ramree the provincial capital, and act as letter-men in the conveyance of orders, from the assistant commissioner there, to the different Soogrees.

I subjoin the official Statistics of Chedooba, for 1839-40 or Mug era 1202.—

Names of Circles.	*No. of villages in each.*	Population.				*Amount of Rev of 1839-40.*	*No. of Buffaloes in 1838-39.*	*No. of Cattle in 1838-39.*	*No. of doons of land under Cultivation.*
		Men.	*Women.*	*Boys*	*Girls.*				
						Rs.			Doons.
Maoun,.	5	541	469	446	404	3,243	520	545	160
Moubreng, ...	7	531	461	417	377	4,033	675	208	226
Kreroo, ...	4	361	315	245	245	1,892	547	187	84
Kyoukiam,.	4	295	276	278	222	2,102	407	121	104
Requin, ...	2	124	120	106	110	1,219	659	. .	75
Joungroa, ...	3	418	353	317	285	2,347	794	13	115
Kama, ...	3	240	209	190	179	1,429	287	59	76
Total, . .		2,510	2,203	1,999	1,822	16,269	3,889	1,133	844
Total of Souls,		8,535							

Division III.

Soil and Productions, cultivated and natural,—Waste Lands.

Soil and Produce of Cultivated Lands.—The general character of the soil of Cheedooba, is that of a light greyish coloured clay, mixed more or less with vegetable mould and on the low eastern parts of the Island, this admixture again modified with a large proportion of fine sand.

The cultivated lands do not generally extend quite to the present beach of the Island; between them and it there exists, throughout its circumference a slip of land varying from 3 or 4 miles on the eastern parts of the Island, to sometimes less than a furlong on the western, which about 90 years since was upraised from the sea during our earthquakes.

This new land is not yet in general cultivation. On the east-north, and north-west it is so in part; on the west it is so thickly strewn over with stones as to make it probable it never will be. Throughout the circumference of the Island, the old beach line which is distinctly traceable, forms the interior limits of the upraised lands. On the eastern parts of the Island, where the soil is sandy, a difference between the older and newer is scarce traceable. But on the western and northern, the purer quality of the clay in the new lands distinctly marks off their soil from that of the older.

Throughout the soils of Chedooba is a large admixture of stones, with exception of those of the sandy plains eastward. They are generally small angular fragments of a soft greenish sand stone, and present no obstacle to cultivation, (except where large and numerous, as noticed above) the effects of exposure to climate evidently breaking them down into rapid composition with the soil

Large quantities of Coral and Juadreepore are distributed over all the upraised lands. The clayey nature of the soils makes them very tenacious of the rains, for which reason they are well adapted for the construction of tanks, either for irrigation or for the supply of the inhabitants. No water for the former purpose is at present required, for the latter, sufficient is found during the dry season, in the holes of the aullahs, and other natural reservoirs, and in the few springs which exist on the Island. The clay base of the Chedooba soils contributes much to endue them with a great permanence of productions

They are not manured for cultivation though under yearly tillage, nor is a change of produce, as a relief to the soil, any part of the system of agriculture pursued, nor is the plan of exhausting the soil, and then allowing

it to be fallow for a season, in practice, year by year the same land yields its single crop in due season; the amount which is exacted from it, and to which it is fully equal. Lands in fallow are observable, sometimes extentively; but on enquiry the account always given of them was either that they had fallen out of cultivation from decrease of population, consequent on long continued political disturbance, or that they were lands cultivated for a season by settlers, who had after a time returned to the communities whence they had issued.

From natural causes connected with the character of the soil, and from a practice in use among the people, all the cultivated lands are strictly speaking subjected to an annual process if not of manuring, yet of an addition into the body of the soil of that which must greatly tend to the same effect. The heat of the dry season covers the face of the land with a tissue of deep cracks, in these the decay of leaves, grass, &c. during that season, makes a considerable deposit of vegetable matter.

It is also customary with the natives to burn their paddy stubble, and grass lands immediately previous to the monsoon, whose first rains before closing the fissures, wash into them the ashes thus formed—with regard to the grass lands they are burnt expressly with the view of improving the future crop, and the same benefit is doubtless effected to the rice land by the practice.

Its effect is particularly beneficial to the upraised plains, by assisting greatly the decomposition and dispersion of the calcareous matter upon their surface, and which must contribute largely to bring them into a cultivable state. To illustrate the gradual effect produced by the above means on these particular lands; it was stated to me by an eye witness that the upraised plain of the N. W. part of the Island was 15 years in acquiring its first clothing of grass, not only is it now covered deeply by that production, but many parts have for years yielded crops of rice, and all might do so. Jungle also is fast forming over it. Some parts of the low lands, both new and old, presented a sort of peat soil, still moist in the middle of the dry season, and affording luxuriant and green pasture. These grassy patches were most observable in the Krae-rone circle, which divides, on the north face of the Island, the more clayey soils of the west, from the more sandy ones of the east.

Rice is the staple produce of Chedooba. It is grown on all the level lands which form a land of more or less width around the Island, to which at present all cultivation with slight exception is limited. The yearly amount of this necessary produce varies, more through the fitfulness of temper of the people, than from any irregularity of the seasons. The

revenue claims must be defrayed with the proceeds of a portion, with another portion the family is to be sustained, the overplus purchases the necessaries of the family, and with no people is the list of these a smaller one.

From the more populous Eastern circles of Krae-rone, Inrooma, and Jueng-breng, a large quantity of rice is annually exported, partly in native vessels, which come for it from Akyab, and from the western parts of the Bay of Bengal, and partly in native boats, which come for it from Ramree, Sandoway, Gara, and sometimes from Bassein. The vessels from the westward, and the boats from the eastward generally purchase on their own account, the former bartering some few country goods It is common for native merchants, or their agents to visit the Island from Akyab, or Chittagong at the season of gathering in the crop, and purchase it up from the different villages, giving a certain amount of earnest money, when it is subsequently collected at a convenient spot for shipment, and vessels sent to take it off. I was very anxiously enquired of by two parties, one from Akyab, the other from Ramree, thus engaged, as to the prices of the grain's market at Singapore, whither both were bound with their venture. A small barter traffic with rice is also carried on by the Islanders with their neighbours of Ramree mainly for fowls.

The western and less populous villages of the Island are also annually visited to see if they have grain to part with, a circumstance depending entirely on the above peculiar temperament of the people.

But independently of the superior advantage to the eastern inhabitants afforded them for a larger rice produce, in the greater extent of their plains, they enjoy also the great benefit of having those plains intersected by deep creeks, generally with a bar at the mouth requiring the assistance of the tide to pass over, but of considerable depth within, where country boats of the largest size, may in perfect security take in their cargo, in the manner pleasing to both parties, quite at leisure. For large vessels also, especially native ones, the anchorage in the straits is safer than that on the western coast, on which although there is anchorage every where, practicable and safe, in the fine season, for such purposes, yet the want of creeks wherein to keep them safe in the monsoon, at present prevents the inhabitants on this part from having any boats for shipment of cargo, which must therefore be taken off at the risk of the purchasers in their own. The rice of Chedooba is considered of very fine quality; a considerable quantity was purchased for the use of the crew of the 'Childers,' and the native

boats employed with her; the price given was 1 rupee for a basket and a half or 90 lbs., this was cleaned; grain paddy was at a much cheaper rate.

Both with regard to soil and produce, what has been hitherto stated of Chedooba stands also true, of Ree-queng or Flat Island, its dependency, and close to its southern shore.

The adaptation of the lands of Chedooda to the culture of rice, over those parts where it is now grown, is so clearly shewn by the quantity and quality produced, that it would seem hardly to warrant any expectation of benefit to be derived from change of produce to be made on them, and those of like character. To such a change also the preoccupation of the present lands in this produce, and the necessity (if practicable) of instructing the natives in the village of any new one in its place, present obstacles difficult to encounter, if not insurmountable.

In considering therefore for any general improvement in the agricultural value of the Island, as connected with the grain in question, regard can only be had to the extension of its culture where practicable, or to an improvement in the method of it, if necessary. On this latter point I am not competent to speak. On the subject of its extension I may say, that by observation made in passing through the country, from four to six times, the extent at present under tillage exists as waste land, applicable for rice. Limiting its cultivation to those flat plains where alone it can be extensively carried on, so that, assuming all rice land to be most profitably occupied in this production.

That the method of tillage does not admit of material improvement, and also, that of this grain no second crop can be produced in one year, and the above estimate would form the greatest probable increase of annual value derivable from this source. It might indeed be increased if a second crop of other produce could be procurable from the grounds, but even for their full occupation in the staple produce, European energy, intelligence and capital must supply the means.

Tobacco forms the next principal produce of Chedooba. In general its cultivation is confined to small gardens of about a rood each, in the immediate vicinity of the villages.

The gardens are all clearly kept, and a lighter mould with more vegetable matter in it, is preferred for their soil. The plants were much closer together than I have observed them to be cultivated in Syria, and the Levant, and I think must want light and air in ripening the leaf, as well perhaps as room for arriving at full size.

I found but one spot on the Island where its cultivation was at all extensive; this was in a small valley about a quarter mile in width, in the

interior of the Island, situated high, and near to the large volcano of Ineng-brew, though in the Inrooma circle. The soil was an alluvial one with a large proportion of clay. A stream ran through the valley. Here were from 8 to 10 acres of tobacco gardens, the plants with much more room given to them, and this spot I was told produced the finest on the Island

The Tobacco of Chedooba is highly prized, and deservedly so. I procured a quantity of it to be made up into cigars for my own use, and was both surprized and gratified to find among these, several of as high and delicate flavour as any from the Havannah which I had ever tasted, and for the best of which, but for the manufacture, they might have been mistaken by any one, not knowing whence they came. The Tobacco of which they were made was grown in the neighbourhood of the South Hill, and on examining those which gave such satisfaction, they appeared to be made from leaves larger and riper than most.

The native, though never without a cigar from the time even before he can speak, does not smoke pure tobacco ; the stems and roots of the plant are cut up into shreds, and with a small proportion of the leaf, enrolled with the leaves of a plant supplied from the jungle, in a wrapper of Tobacco. He cannot therefore be considered a judge of the quality of his own produce, by those who use the purer article. The leaf when gathered, is dried in the sun, and when dry, strung through the stem upon slight skewers of bamboo near two feet in length ; these again are woven together with one or two strips of the same material into bundles of between 2 and 3lbs. which sell for our rupee each. This is the preparation of the larger leaves, and is for sale, the refuse supplies the family stock.

The whole of this produce which, from what has been said, will not be concluded to be extensive, is disposed of from time to time along the neighbouring coast, and the Island of Ramree, some of course finding its way further, but at present with exception of the larger cultivation mentioned, it is grown in sufficient quantity only by each family, to be kept instead of ready money, wherewith to supply the different wants or wishes of its owners, its quantity and estimation always making it an article of ready sale or barter.

Tobacco was always found growing on ground perfectly flat. It may be that the heavy rains of the monsoon oblige this, in order to prevent the plant, if on a slope, from being washed away, though this was never assigned as a reason, but simply convenience. Should the above supposition have weight, it would of course tend to limit the cultivation of a plant which necessarily standing very open, is therefore much exposed to such peril

Still there exists throughout every part of the Island, waste lands whose soil would be found applicable to the cultivation of tobacco to a very large extent, even if subject to such limitation, and I am strongly impressed with the opinion that such cultivation would prove one of, if not the most valuable to which the unoccupied lands (not being rise grounds) could be applied. The present extent in which this plant is grown over all parts of the Island, I incline to look on in the light of a experiment only, but one truly valuable, at once for its extent, and its success, and therefore affording data under prudent precaution of similarity of soil, &c., on which to found expectation of great profit to be derived from its extension, in which case the present experience of the inhabitants in its culture, even when necessarily modified with view to improvement, would be found a valuable co-operation. It may be that my own estimate of the flavour of the tobacco I have spoken of above, has been erroneous, but even if so, the general mildness of all Chedooba tobacco, when improved by greater attention to its culture and preparation, would give it an extensive preference over the strong Manilla; whereas should it be found practicable to grow extensively a leaf of the flavour and quantity which I think to have found in the above specimens, Chedooba would become a formidable rival to the Spanish settlement.

The employment to be given by the manufacture of the leaf, if extensively grown and saleable, would add another source of benefit to be derived from such a step.

Cotton—Is grown in several parts of Chedooba; generally spots in the jungle are selected and cleared for its cultivation, which is however very limited, not affording employment by its manufacture for the women throughout the year. The surplus required to keep the looms (of which almost every family possesses at least one) at work, being imported from the main land.

Excepting a few plants in the gardens of the villages, I found no cotton in growth, though land were being cleared for it in several parts, and some of them extensive. Those few plants appeared to thrive well, but from the shortness of the staple of that which I found in use, whether of the Island produce, or the Mainland, I conclude that what is at present grown is as inferior in quality as limited in amount. It was however very clean and white, the articles manufactured from it, a few coarse cloths for the person. The soils on which the best Cottons of India are grown, I have understood to consists generally of a rich deep mould; if such be the case, and necessarily so, for the perfection of this plant, I fear that Chedooba holds out no prospect of benefit from any

extensive culture of it. That soils exist in the Island, where it may be grown with advantage to greater extent, and of better quality than at present, I doubt not, but I think that the advantage to the Island would be limited to the production of a supply of it sufficient to give fuller employment to the native looms, as at present wrought for domestic purposes, without recourse to importation

In the gardens of every village Sugar Cane in small patches is to be found; it is mostly of a red kind, small, and woody in stem, with short joints. In the Eastern parts of the Island it is grown to extent sufficient for the production of a few maunds of jaghery; but in the Western parts, where it is of more recent introduction, a sweetmeat for children is the highest object of its growth.

As with the Cotton, and for the same reason, I incline to the opinion that Chedooba does not hold out the prospect of any extensive growth of the Sugar Cane.

The only place where I have seen this valuable produce flourishing in this part of the world has been in the Amherst Province of Tenasserim, where it was luxuriating in a soil very different from any which were found, or are I think to be found, in Chedooba, a dark rich vegetable mould. In the neighbouring Island of Ramree it thrives well, and it is fair also to state that not only is the Chedooba plant one of very inferior quality, but that not the slightest trouble in the way of cultivation is taken with it; portions of the cane being merely put into the ground in the month of May, and left to nature to bring to perfection. That therefore as with the cotton it might be both improved in quality and increased in quantity, admits of reasonable expectation. But there seem to be insurmountable obstacles to Chedooba ever becoming of importance as a Sugar Island, arising from the unsuitableness of the soil in general, and, (under the supposition of the occupation of all rice grounds in the cultivation of that staple,) the too limited extent of surface for such purpose, clear of steep hill sides, which would remain. In passing through the jungle on one occasion a cleared spot of some 4 or 5 acres was found occupied half with hemp, and half with indigo.

This was a speculation of a native, and the unusual enterprize it discovered promised to bring its reward, as both crops appeared healthy and flourishing. The planting of Indigo is very limited, the plant of an inferior quality, and its preparation a very clumsy operation. It is not grown for export, but sold in the different villages to dye the produce of the native looms.

I could not learn that the Hemp was a more common production than the other; in fact it is grown in small quantity only on the Island, to whose inhabitants it supplies material for the few nets they possess. I had no means of judging of its quality, other than from the healthy appearance of the plant, which at least seemed suited to its soil, and therefore to afford prospect that this produce might with success be more extensively cultivated in portions of that district of the waste lands which lie between the available rice plains and the steeper hills. In conclusion of this notice of its agricultural produce, and in contemplation of plans for the future improvement of the Island in this regard. the general impression resulting from examinations of its soils, and consideration of the character of its inhabitants, was that such object would be effected in the best and readiest manner by increased care and attention given to extension and improvement of crops already grown on the Island, rather than by attempts to introduce on it extensively any new produce.

A good supply of cattle exists on the Island. The buffalo gives his strength for the more arduous agricultural labours. The lighter cattle draft the produce in hackeries with which the Eastern villages are well supplied. The breed is small, but strong, and supplies very sweet meat. Labour in connection with agriculture is however the only demand made on them by their masters.

Fruits are not very numerous on the Island, unless the multifarious produce of the jungle, familiar alone to a Mug appetite, is to be honored with the name. In the struggles of past times between the Mug and the Burmah, Cheedooba had its share, and from one of the measures adopted during those times in connection with this head, viz., the destruction of all its cocoa-nut trees, that they might afford no sustenance to an invader, it still suffers. Of this valuable fruit therefore there are comparatively few, mostly young trees, but they thrive luxuriantly, and a few years more if attention be paid to their increase, would see the Island supplied with them in quantity sufficient for more valuable purposes, than that for which alone it is now esteemed—the means of making complimentary presents.

The plaintain flourishes well; but is not much cultivated, and is generally an inferior sort, containing a large hard seed.

The pappa is common, and large in all the village gardens.

The tamarind flourishes in great luxuriance and grows to a large size. This tree almost universally supplies shelter and shade to the villages.

Its fruit is not much used by the natives. It is found growing indigenously on the second or old beach, but was observed nowhere else; with scarce an exception, this being also the situation of the villages.

The mangoe grows wild to a great size. I have measured some of more than 4 feet diameter—its fruit is very inferior, nor is it attempted to be improved.

Both the lime and the orange are found in many of the villages, and thrive well.

The orange is of that sort named elsewhere the sweet lime, and if extensively cultivated would form a very grateful addition to the luxuries supplied to the capital.

Vegetables as fruits, are also of small amount. But here again as with his orchard, the Mug looks to the jungle to make up the deficiency of his garden produce.

Yams are good and large, but plentiful only in the eastern parts.

Many species of pumpkins and gourds are grown in almost every garden; brinjals are very fine but not in plenty.

A small shalot is grown in the gardens generally, and some fine onions, which I was taking with me for my own use, were both so much admired and demanded for seed, that this improvement to the Kitchen Garden, will probably in due time become general.

Chillies of all sorts are in every day demand for the curry.

In introducing to notice the more natural productions of the Island, in the vegetable kingdom, it may be well as before first to speak of the soil in which they are found.

This is with little exception of one character, a loose friable earth of light yellow colour, having the general clay base much modified with decayed vegetable matter, the angular fragments of soft sand-stone having passed from a greenish into a dirty yellow colour, and being in a state of rapid decomposition.

The exceptions to this were found in a few spots to consist of a soil bearing more of the character of mould. The above soil extends throughout the interior parts of the Island, embracing all the hills higher and lower down to those flatter lands which have been noticed as applicable for the extension of rice cultivation, and constitutes that of the jungles, which are co-extensive with it.

These in their general character are open, consisting much of detached clumps of bamboo or of trees from 1 foot to 18 inches in diameter, well separated below, but in their branches having creepers thickly entwined. Throughout the lower jungles, open spaces, some deserving

the character of small plains, are of very frequent occurrence. On the higher hills, the trees are closest of growth and largest of size, but still clear of understuff. Throughout therefore, no serious obstacle is presented in the task of clearing the land for cultivation,—a Mug, with a good dáh felling the trees over half an acre a day, and a footman may penetrate without obstruction in any direction.

The tops of the highest hills were visited with ease, save from the steepness of ascent, parts being traversed, which the superstitious fear of the Mug would never have permitted his voluntary approach to.

Timber of great size, and some of valuable quality, is to be found, but it is confined to the very summits of the highest hills, and is therefore partly inaccessible, nor would its amount ever remunerate the labour of constructing roads for its transport. The soil in which these grow is of the same nature as that described above, but within a few hundred feet of the summits, all of which are very steep, it is piled up in the loosest possible manner. The stroke of an axe or dáh on an extensive hill top, would so shake it for a space of 150 yards around, as to make observation in the quicksilver of an artificial horizon impossible.

Precisely at the spot where this loose texture commences—commences the growth of the large timber, increasing in size thence to the summits, and from the trees not being deciduous (or at least not so at the same season) a most marked line of separation is thus traced out between these and the smaller leafless jungle below.

The wood oil tree was the most conspicuous in growth and size, of the larger trees of these summits.

One was felled on the west hill, which measured in diameter at the respective ends, of a 60 feet length, 4 feet 6 inches, and 3 feet 6 inches, and another is left standing as a mark, on the summit, which measures 21 feet 4 inches in girt at 6 feet from the ground. The wood of this tree will not, I fear, be found valuable as timber, but its produce, the wood oil, has yet to be better appreciated than at present. This substance is produced by cutting a hole into the body of the tree,* and kindling a fire in it; the flat floor as it were, of the hole, has a groove cut in it, which receives the oil as it crudes from the wound, and whence a split bamboo conducts it to the pots placed for its reception; the quantity thus yielded from a large tree is surprizingly great. In felling the above mentioned individual the oil ran in a stream from it, and it must have contained even tons. The strict propriety of designating it an oil may be doubted. It has always

* See Dr. Spry's Visit to Arracan, No. 110.—Ed.

seemed to me more like a varnish; it speedily forms a highly polished surface on wood work, and has a fine aromatic scent, not unlike that of cedar; mixed with reeds and dried, it makes a brilliant and fragrant torch. The colour of the wood is a dull pink.

In the course of clearing these summits for observations connected with the survey, many other trees were felled exhibiting characters apparently valuable as timber. Among the natives there were differences of opinion about their names, and waiving even this obstacle to any description of them, the remark already made of the difficulty opposed to their being brought down, renders such attempt unnecessary. The oil trees would be found most valuable as a source of supply for that material, and perhaps many of their neighbours also would be found more useful living than dead, by the produce they may be found to yield One of these, of large size, and with a bark similar to cork, was found to produce caoutchouc in great abundance. On cutting through the outer rough coat, a soft inner one, nearly an inch thick, is found closely attached to the more solid wood; on wounding this, the caoutchouc exudes freely, of a consistency and colour like thick milk. The tree was much avoided by the natives on account of the noxious quality of this milk, which if by accident entering the eye, on the tree being struck, so as to wound it, was said to produce certain blindness.

Another tree of very large leaf but moderate size, was also much avoided, and great care taken in felling it, to prevent its juice from touching the skin, which it was said to blister and poison. The adhesive quality of this substance was therefore more taken for granted than proved.

A plant, with the appearance of a cactus, but growing to the height and size of a tree, and known perhaps generally under the name of *Sisso* (not the timber tree of that name) yielded the caoutchouc in the greatest abundance. On severing a leaf, it ran forth in a small stream like milk. Many of the creepers also contained it in large qualities, and in one spot of the jungle of the Krae-rone Circle, I found the Caoutchouc tree of South America, affording prospect that as European intelligence and enterprize became more attracted towards the products of India, that continent may some day find its exclusive trade in this every day increasingly valuable article, formidably disputed. The wild cotton tree grows to a great size, and at the time seen was covered with a mass of its beautiful crimson flowers and flocks of birds. Its wool is sometimes used for stuffing pillows or beds.

The Gamboge tree was found of large size, and in considerable quantity, in clearing the jungle from the summit of the N. W. Peak; it was well

known to the natives; but no use is made of its beautiful gum, which covered the stems in considerable quantities. It lives in the higher jungles.

It is not doubtless the only tree in these wilds yielding a valuable gum, but want of acquaintance with botanical science prevented researches of that kind, which might have led to useful discovery. The safety and facility, and even enjoyment with which such researches may be carried on in the fine season, in the woods of Chedooba, seem however to point them out as a spot very eligible for the careful examination of an able botanist, unless indeed they be considered too limited in extent to exhibit a sample of the general character of the jungles of this coast.

A very brilliant crimson gum was found to flow in great quantity from a large creeper (Tallee-medzou-nowy) which is very common. If dried speedily in the sun, becoming very brittle, but retaining its color, it is of very astringent quality, and is used in some diseases as a medicine by the native quacks.

I may not fail to mention another creeper, whose properties are as valuable as interesting, and not the less so from its being found every where, both high and low. It is truly a traveller's friend, and the wandering Mug well appreciates is value. With his dáh he cuts off a junk and quenches his thirst with its contents, a pure, tasteless, cool water, of which it contains as much as its large numerous pores will hold, and which are immediately emptied by holding the piece perpendicular. A piece about 2 feet in length, and as thick as a small wrist, gave rather more than half a pint of water. In the rainy season it would have given double that quantity.

In travelling through the jungles, the liquid of this water creeper (Jabroon nony) is the constant beverage of the natives, when not otherwise supplied with that necessary, and its universal presence makes him very independent in his choice of road.

The rattan is every where found in the jungles, and performs all the ordinary duties of rope; it grows to a great size; two were taken from the West Hill measuring 114 feet in length, and 1½ inch diameter.

Although Chedooba may not be looked to for supplying valuable timber to other parts, yet for its own consumption, and most, if not all domestic puposes, it possesses amply sufficient to meet any demand. For such purposes plank may easily be brought down from the hill, whence the whole tree must be immoveable. The lower jungles contain woods, perfectly adapted to such uses, and in those of the Eastern Plains was found the Thew-gaan growing plentifully, some of the trees between 2 and 3 feet in diameter, and which itself would supply material for almost all

purposes. The wood of this tree is hard and close grained, of a yellow colour and most durable. In the Southern Provinces of Tenasserim it grows to an immense size, and also in the Sandoway district; hereafter its qualities may be appreciated by other than the Natives, with whom its durability has given rise to the proverb that 'a Cemoe of Thew-gaan lasts 99 years.'

It has been thus seen that the soils of Chedooba to the very summit of the Hills, and even there more so, are both productive and easily wrought. That therefore in any future agricultural improvement of the Island, man's industry will lay claim to a very large portion of that extent, now entirely in a state of nature, there can be no doubt; and over the face of all the lower hills, crops of various produce take the place of the jungles, which now occupy them. Such cultivation, even though limited to the extension to the greatest amount practicable of those products which are now but so partially grown on the Island, would therefore leave but a narrow space to be provided for, below those steeper, almost precipitous hills, which must always be given over to nature whereon to maintain supplies of timber and fuel. What such a space might be most profitably occupied with, it is perhaps attempting to look too far into the probable future, to make it other than presumption to speculate on. Yet in considering the nature of the soil, and comparing it with that of the spice gardens of Penang and Singapore, it has seemed at times likely that a similar produce might be found practicable here. For taking into consideration the very great disparity in the mode of the distribution of moisture between the two localities, still the pepper vine flourished at Sandoway, and at Mergiu, if not Moulmein; places all subjected to the same peculiarities of season. The growth of the Nutmeg, Cloves, and Coffee, are not yet despaired of.

Of the productions of the animal kingdom, the Island exhibits but a limited variety—under the head of agricultural produce it has been already mentioned, that large cattle thrive, and are plentiful and might be no doubt much improved—not only at present are they not killed for food, but even their milk is not used, and authority was obliged to be exerted in order to procure this luxury in the midst of herds.

The use to which they are applied has in the same place been already noticed, and beside them there are none.

One pony lives on the Island, the property of the Soogrees, and two goats are claimed, as belonging to the party of police, which is stationed at the chief village of Chedooba.

Of wild animals, the deer is the largest and most plentiful; they are very numerous throughout the Island, though I never either heard or saw but one species, that which is generally known as the 'barking deer.' The natives run them down with dogs; they have no means of shooting them. The flesh was found less dry and unflavored than was expected.

Next in size and number to the deer, is the wild hog, the only species on the Island. They are not large, but numerous, especially in the jungles which lie closest to the rice lands, on which they commit heavy depredations, and our assistance was frequently invoked to destroy at least some of the enemy. But in general the labour of the day was deemed enough for our party without trenching on the hours of rest, which was necessary in order to comply with the request.

Jungle cats are found but are not numerous, but one was ever seen by any of our party.

Squirrels are plentiful, and of large size, though of but one species; a dark brown in colour throughout, with exception of the throat, and a narrow stripe along the belly of yellowish white. One was shot of the size of a full grown rabbit; it was a male, his lady in company was of more delicate size.

Monkeys we heard of, but I much doubt their existence on the Island, at least it is strange that in so long and extensive a traverse of it, such an animal was neither seen nor heard.

The freedom from any formidable wild beast is a circumstance of advantage in these countries, which may not be passed over without remarks; it contributed largely to the comfort and freedom with which we were enabled to penetrate throughout the Chedooba, forming a source of congratulation when obliged to take up a night's lodging, or a day's journey in the jungle.

The Natives state that a tiger did once attempt a landing on the Island, but fortunately being seen while yet swimming towards the shore time was afforded to the inhabitants of the nearest village to prepare for his welcome, and before he could gain footing, either for attack or escape, he was cut in pieces with their dâhs, since which, his example has never been followed.

I know not how far the swimming qualities of a tiger may bear witness to the truth of this story, but the feat in an opposite direction was safely performed by one of the elephants which were placed at our service, which after breaking from his ropes, swam the straits, and landed safely on the opposite coast of Ramree, a distance of seven miles at the least, where he was recaptured and sent back.

Of reptiles, one snake was seen, and a few lizards and insects, the most numerous and beautiful are the butterflies, which were found even on the highest peaks. Bees are plentiful, but the jungles alone supply the honey, which is very sweet and good, and serves throughout the Island in the place of sugar.

Fish forms a very important part of the diet of the Mug, and mainly in this view, are the villages of Chedooba formed around the shores. It is very plentiful though not of any great variety. The most common is a species of bonetea, a muscular fish of rapid motion, and great strength, though seldom arriving at a weight of 4 lbs. It has a very thick smooth skin, without scale, and is of silvery white, longitudinally spotted with blue. On the western coast in the sandy bays, they are very numerous, and are taken in great plenty with hook and line.

The bamboo supplies the fishing rod, and in the evening, when most readily taken, the shore may be seen with 20 natives in a line from the nearest village, as close together as they can stand, up to their middles in the water, with their baskets slung on their backs, and casting their lines as rapidly as if fly fishing, laughing and joking at their success, without the least fear of driving their prey away, though they must be among their legs. The flesh of these fish is very firm and nutritious.

Very great quantities of a tiny little fish, most similar to, if not in fact, the Anchovy or a small Sardine, are taken on the same coast. They are dried in the sun without any preparation, a day or two's exposure being sufficient for the purpose, and exported in great quantities to Ramree and the neighbouring coast; each family also of the western villages where it is taken keeps a large supply, and demand is extensively made for them by the less fortunate communities eastward, so that they form a valuable adjunct to the resources of that portion of the inhabitants in whose neighbourhood they are common. The method of taking them is perhaps peculiar, and forms an interesting and lively scene. The morning is the time of the best 'take,' at which time, and when near high water, young and old assemble on the sand in groups, with flat open mouthed baskets of bamboo work, awaiting the opportunity for a catch. This occurs when the shoals of tiny fish are driven for supposed safety close into the beach by their larger, persecuting, and ravenous brethren. Then away dashes the nearest group of expectants into the water to the back of the surf, which is constantly, though not heavily rolling in on the coast, and driving back the original pursuers, face round in shore and place the flat mouths of their baskets in line together, just outside the

retiring wave, receiving from it, its finny contents. Sometimes more than a gallon will be thus deposited in a single basket.

The uncertainty as to where the shoal will come in, and the rapidity and ability with which the fortunate group take advantage of their opportunity, afford all the excitement and amusement to these cheerful people of a game of chance, and cannot be looked on by a stranger without interest. Flocks of cranes, crows, kites, and gulls of many sizes, colours, and voices, looking out for the stragglers on the sand, who have escaped the mouths of the fishes and the baskets, form an addition to the scene.

The grey mullet of good size and flavour is got from the creeks of the east side of the Island. Rock fish are plentiful, but not easily taken; when intended to be preserved, they are split into quarters, kept together at either end, and then opened by strips of bamboo, and the whole hung up to dry in the sun. Skate were frequently seen, but none caught, they were often observed to make very high, though clumsy leaps, a feat not often I believe, practised by flat fish. A fish of considerable size from 12 to 20 lbs. weight apparently, and in form resembling the salmon, was frequently seen of an evening performing very astonishing leaps. They were always quite perpendicular, and therefore appeared as a gambol, more than an effort to take prey, and sometimes extended to a height of 30 feet.

Of shell fish we found craw fish and prawns, the latter of great size and very delicious; they are limited to the creeks of the east side of the Island, where also the one in the neighbourhood of the Meug-breng village, possesses truly fine oysters. They are large, but of a flavour as delicate as our own Colchester luxury. They were in high condition when we visited their neighbourhood, and it may be lamented that they are not more generally known, and attempts made to grow them elsewhere. They have been transported to Kyouk Phyoo, and do well there.

Turtle are common, and are taken by the natives on the sand islands and bays. They are of large size and of good species, but I can make no mention of their quality as food.

Many beautiful and valuable species of shells are to be found on the flats off the North Point of the Island, where however but little leisure or opportunity of dredging for them was afforded.

Fowls are plentiful on the Island, and supply the most solid food to which the natives are accustomed. The demand for them by our people raised the price latterly from 18 to 13 for the rupee. They are of good size, and good flavour.

Of wild birds, the Sarus is perhaps the largest on the Island, and is plentiful. They are common in other parts of India, and are, I believe,

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good eating. There are a great many varieties of the Crane, some of very beautiful plumage and great size. These constitute the greatest portion of the feathered inhabitants, and would supply perhaps some new and valuable varieties, if not species; Doves are very numerous; a small green Parrot is found, and some few green Pigeons were seen. But in general, other than have been mentioned, the birds are of those species most commonly met with in these climates. The jungles are however scantily peopled, though I may not omit to notice one which, with its sweet and soft note late in the evening, often gratified us, and was deemed not an unworthy brother songster of the Nightingale.

The Mineral Kingdom—Though bare of much value, exhibits specimens of some interest.

Nodules of Iron ore of rich quality, are, on search, to be found generally either embedded in the greenish sandstone, or having been detached from it.

In the former state they were found most numerous, on one of the reefs of the North West Point called the 'Saw reef,' and in the latter on the North beach. But in neither case in quantity sufficient to make them valuable for other objects than those connected with science.

Specimens of copper ore, and some few of silver, were found on careful search, lying on the barren surfaces of the different volcanoes. They are all of very small size, and their amount limited as those of iron, and like them give no indication of the existence of the ore to any greater extent. A piece as large as two eggs was recorded as the largest ever found.

Petroleum is found on the Island, and might be extensively produced.

Two wells sufficiently near each other to afford the conclusion of their possessing one common source, exist in the Krae-rone circle, yielding annually about 60 pots each. A third is found in the 'Mroomee' circle, but it has been destroyed by fire, and yields nothing, being the property at present of no one in particular, the soil around it, is, however, full of the oil. The fourth and most extensive is in the Fangroa circle, and yields near 200 pots in the year.

The method of collecting it is simple; the earth is turned up to a depth of two feet, and a bank of soil raised round a square of about 20 yards, thus disturbed, so as to form it during the rains into a shallow pond of about the above depth. The surface of this pond is in a constant state of ebullition from the escape of gas, with which comes up the Petroleum.

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It collects on the surface in three different forms. A green fluid oil first spreads itself over the spot where the gas is bubbling up; as it extends, its edges exhibit a brown curdled substance resembling half congealed dripping, and amongst this, as it becomes thicker, is seen gathering in spots, a dark brown substance of the color and consistency of molasses. This latter is used to preserve wood, to saturate paper for umbrellas, and is sometimes burnt. But the fluid of green color, is that mostly used to supply lamps. The curdled substance is used with the dark in the coarser purposes to which it is applied. This is the least valuable, and sells at 5 pots for a rupee. The other two at 3 pots for 2 rupees.

A bamboo is used to skim the surface of the ponds, and bring the substance to the bank, it is scooped up with a cocoa-nut shell and put into the pot. It floats so lightly on the water that this process is quickly and effectually performed. The break of day is the time chosen for the operation as from the cooler temperature, it is then of harder consistence on the water, and easier and cleaner skimmed. In the heat of the day it becomes so fluid as to make it difficult to collect without a large proportion of the water.

In the months of March and April the pond gradually dries up, and the oil can then be no longer collected from out the soil. The pond is then dug, and the whole soil in it as much disturbed as possible; on this operation depends the quantity to be yielded during the next season, and the deeper it is dug, the larger will be the produce; while on the other hand, if it be neglected, which is most commonly the case, the quantity of oil to be collected will be very materially diminished. A sort of superstitious fear is attached to these ponds, and on no account would a native dip his foot in its water, though he will not hesitate to dig the soil when dry, nor to handle its produce, to which no sort of deleterious property is attached. The state of ebullition without apparent heat may occasion this feeling among them.

The ponds are surrounded by a rough hedge of stout sticks, to preserve them from the intrusion of buffaloe or deer. Insects were seen in them. I had no means of collecting any of the escaping gas, which I should otherwise have done, but no heat perceptible at the surface is employed for its extensive developement. The Thermometer where the greatest ebullition was going forward shewing but two degrees more than the atmosphere, viz. 74°.

No doubt this mineral produce, might with ease, and little expense, be increased to a very large amount, and the oil has yet perhaps to be

better known, and better appreciated than now, when its value will in all probability be much increased.

I know not whether it has ever been thoroughly analyzed, but the almost pungency of its scent seems to proclaim the presence of a large portion of Naphtha.

In composition it differs from the tar produced from the wells of Zante, or the pitch of the Lake of Trinidad, partaking in all probability the character of the oil, which is found in the wells of the Irrawaddy. The material from these is in considerable use in our Tenasserim Provinces, and its native country, as a preservative of wood from the attack of the white ant, which it effectually prevents, and it is in considerable demand in the construction and preservation of the wooden houses of those countries; affording reason to believe that this, its well known and well tried property, might, with benefit, be more extensively made use of in other places. In a dwelling house perhaps an objection against the painting of the beams with petroleum might be supposed to lie in its scent; though this may prove but a supposition, and at any rate it can form no objection to its use in stores and godowns, and other buildings of that nature, whether public or private. The expense annually incurred in Calcutta for repairs, called for, from the above cause of destruction, where it is necessary to examine, if not renew timber once in 3 years, seems at once to point out an extensive sphere for the application of this, its valuable property, in connection with which is also its employment in the preservation of spars for shipping.

The extension of the wells which are all situated in the jungles, and an increase of their depth so as to hold water throughout the year, are simple means by which this produce of Chedooba might be at once largely increased to meet such extended demand, at present I believe the use of the petroleum to be almost entirely confined to the limited application it finds among the natives. The only other mineral production it remains to notice is coal. This, or a lignite, was found about a mile within the western beach in the Circle of Tang-roa.

It had been known for 2 years, and had been dug into, to a depth of perhaps 5 feet without exhibiting any improvement over the surface specimens. It was found shewing itself for a distance of 20 yards in an east and west direction. Its situation, a little above the water mark of a dry creek, formed by the first and second lines of Hills, and its dip an angle of 45 into the body of the latter, which rose 800 or 1,000 feet above the spot where it was shewing. In formation it consisted of a series of layers varying from $\frac{1}{16}$ of an inch to 3 inches in thickness, se-

parated from one another by their laminæ of ferruginous sand. It was very brittle, with a dull fracture, and smouldered, but would not ignite. Neither from its situation nor its quality does it promise to become of any value.

Division 4.

Climate.—Chedooba, in common with the Arracan coast, has been generally considered as possessing a climate peculiarly fatal to Europeans, and the mortality of the Troops who occupied it during the Burmese War has given but too painful cause for the opinion.

Nevertheless I cannot but think that its insular situation, and its freedom from that extent of muddy creek, and Mangrove swamp, which peculiarly characterizes the coast of the mainland, together with the greater openness of its jungles, must be the occasion of some difference between them, and that in favour of the Island.

Its seasons are those of the adjoining countries, and may be divided into wet and dry; the rain commences its visit in the beginning of May, with variable winds and intermittent showers, which, increasing in frequency and duration, introduce the deluge which pours down incessantly from the middle of June to that of September, during which period 250 inches of water fall. Thence to the month of November is occupied with the gradual taking off of the rains, which from that month cease till the following May brings them round again.

In every country subject to such periodical rains there are two seasons when the sickness, which is the peculiar one of the climate, prevails, viz. at the commencement and taking off of these rains. Even in those countries which, but more partiality, are subject to a wet and dry season, as Italy, the Levant, and southern shores of the Mediterranean, the same effect is produced, and spring and autumn there, bring with them, their ever accompanying miasma fever. Under the effect therefore of a tropical climate, where the change at this time, in operation throughout the whole vegetable kingdom, is so much more extensive and violent, the effect of the greater developement of noxious vapour, must be necessarily looked for; and accordingly these periods are found to be the sickly seasons of Chedooba, and the coast around, and their regular return calls for great care and prudence on the part of the European, for whom, occupation of mind and body, as active and full as regard to unnecessary exposure will permit, may be strongly recommended then, as perhaps at all times, as a valuable addition to other precautions; as it has frequently been found that our sailors and soldiers, have suffered less from the

effects of climate when under the exposure, than when mind and body have alike been unoccupied and unenlivened.

Exposure to the direct heat of the sun of Chedooba, and its neighbourhood, is at all times of the year to be carefully avoided, and such imprudence will be the almost certain occasion of illness to an European, to whom the simple remedy of a chattah is always at hand; some peculiarity in the atmosphere appearing to make its rays more than commonly obnoxious at all times to his constitution; but this is more particularly the case in the months of March, April, and May, when the natives themselves are much concerned to avoid the intenseness of its heat. The mornings and evenings however, even at this time afford 4 or 5 hours, when all out door duties may be performed.

The above months constitute the hottest season of the year. The Thermometer in the day ranging at times to above 90°, but falling, from towards evening till before sunrise, down to a temperature, which is pleasantly cool throughout the night, a benefit enjoyed all the year round. On the main land, the nights at this season are frequently accompanied by a dense mist almost amounting to a rain, arising in all probability from the condensation of moisture, attracted from the large extent of water surface exposed by the numerous creeks.

Chedooba, with nights equally cool, and more healthy, is free from this peculiarity. But with the mainland, is, during the day, at this season, subject to a dry haze, at times to thick as so hide the view of the land; at a very few miles distant.

The heat at this time is greatly attempered by the fresh sea breeze constantly blowing, which gradually veering from south-west to north-west, with only a decrease of strength during the night, takes the place, at this latter point, and time, of the direct land breeze, which blows during the night in the cool season.

This cool season, the most enjoyable, and the healthiest time of the year, extends from the setting in of the north-east monsoon, towards the end of October, to the middle of March, during which time the climate is very delightful, the temperature seldom rising, excepting as the season closes to that of the summer heat of our own country. But the sun at mid-day is still very powerful, and direct exposure to it, to be avoided. This was the season during which I traversed the Island, and though constantly in the thickest jungles, sometimes by night as well as by day, I do not remember to have suffered a headache.

The sea breeze at this time sets in at 10 A.M., and falls with the sun, shortly after which a cool land breeze from the eastward takes its place, till

about 9 A.M., when an hour's calm is again succeeded by a breeze from the nort-west. The change of temperature was found very great during this season, between day and night, with the exercise of walking, the lightest clothing was found most suitable during the day, but about two hours before sunset the temperature falls rapidly, and at night with the land breeze blowing, two blankets and a counterpane were not too much to prevent actual cold. This change must always be carefully met, by dressing in woollen, a precaution which should never be omitted.

The same peculiarity of atmosphere, which produces such ill effects from exposure to the sun, may also be the occasion of a greater amount of exhaustion (not fatigue) under the exercise of walking, which I experienced more in going over this Island, than I had ever previously found, in the few other parts of India yet visited. A remedy for this feeling was always found by application to the contents of a haversack, and the precaution was always taken of not setting out on the day's journey without the regular meal. It is not altogether from personal experience in this particular, during so limited a time, that I would express the opinion, that bodily exercise of any sort in this climate, requires for its support, at least by the European constitution, a generous diet. In its corroboration, I was informed, that during the time of service, on this coast, of the 65th Regiment Native Infantry, a very fearful mortality took place among the Sepoys, not so much from the actual violence of the prevalent disease, the well known Arracan fever, as from the consequence of its debilitating nature, from which the constitution of the Native would not allow him to rally, though always assisted by liberality administering strengthening medicine and means; while to this mortality among the privates, a strong contrast was exibited in the constant good health of all the officers, throughout the whole period of nearly two years, a contrast attributed by the medical, and other officers of the regiment to the difference of diet of the two parties. During the exposure to which the crew of the 'Childers' were necessarily subjected in the execution of a survey on the coast, many cases of the same fever occurred, at the present time amounting to upwards of 60 in number, but of the parties so suffering there were but few who were not perfectly recovered, and at duty again in 8 days, a circumstance which I incline to attribute mainly, not only to the usual liberal allowance supplied to Her Majesty's seamen, but also to the endeavours (fully appreciated) to supply the crew with as much, and as great changes of good food as were, under circumstances, procurable.

There must not be left out of view the great value of the facility of an immediate application, on first symptoms, to a medical adviser afforded in

a man-of-war. Nor again that of the precaution which the service provides under such circumstances, by the administering of wine and quinine to all likely to be exposed. This latter was found of great use, and is much to be recommended, which, in regard to the other consideration, it is right to notice, as tending to deprive this fever, of something of its formidable character, that in many cases, a simple dose of medicine, administered on first symptoms, has sufficed to drive it entirely away. One case only proved fatal, and with it were connected peculiar circumstances.

The climate during the period of the heavy rains is not an unhealthy one, it will be one necessarily of great confinement to the European, which is perhaps unfavourable, being inclined to attribute much value to personal exercise, but occupation by all who know its value, would not even at such time be found impracticable even for the body, much less for the mind.

The temperature during this season is cool, though the moisture of the atmosphere is very destructive to every thing but stone and metal. It is the time for the growth of the crops which we put into the ground just previous, and it is now that nature puts on her rich clothing of verdure; and vegetation is most rapid. It is accompanied by a constant breeze; from the south-west. The natives enjoy this time as much as their Burmah brethren, and with their smallest children, like frogs, delight most in exposure to the heaviest falls.

Great importance as a preservative of health in this climate is to be attached to a very careful watch over the due performance of the digestive functions; both speaking from personal experience, and also by observation of our sick generally, it being found that inattention to this particular was not so much the occasion of dysenteric disease, as that it rendered the party liable to the prevailing fever, which was found to them a very intimate connexion with the state of the stomach, any derangement with the regular functions of which, if not a certain occasion, being at least a strong predisposing cause to taking the disease, and being found in all cases more than ordinarily its accompaniment.

My acquaintance with the climate of Chedooba is but small, and was limited to that of the best season of the year. I therefore would speak on the subject with every deference to the opinions of others of more practical knowledge, and extended experience. But as the result of what I have found and heard of it; I am strongly impressed with the opinion, that, employment for body and mind—to avoid direct exposure to the sun;—good (not intemperate) living; accommodation of clothing to

changes of temperature; careful attention to the state of the stomach; with due observation of these precautions, in aid of a sound constitution, the climate of Chedooba, would be found not only healthy, but at some seasons most delightful to the European.

The eastern parts do not enjoy so temperate a climate in the hot season as the western, being less exposed to the fresh sea breeze; and the immediate neighbourhood of the creeks would be found situations prudently avoided. The fine pulverulent soil in the east, by the quantity and penetrating nature of the dust it creates, is also at that season a very great annoyance; notwithstanding therefore the greater exposure during the monsoon, and that it is at present far less populous than the eastern. I consider the N. W. portion of the Island, as that which, at all seasons, would be found the most congenial to the European constitution.

While speaking of the climate of their Island, it is fair to notice its effect upon the natives themselves, as well as upon Europeans, and it was found that they also are subject, though but inconsiderably, to occasional attacks of the fever.

All the able-bodied men on the Island were employed with me on one occasion for a fortnight together, and therefore came under my direct notice, and though at hard work all day, and sleeping in the jungle at night, it came to my knowledge that fever had been taken by only one individual throughout that time, an old man verging on 80 years, and who ought not to have been present.

In traversing the Island throughout, I believe not to have omitted visiting any of its villages; and whatever sick were in them, always made application for relief, either personally, or by their friends. These cases amounted in all to four of fever, one of small-pox, one of dropsy, one of paralysis, one of blindness, and one of deformed limb, three cases of fever occurred also with our Bengallee attendants. The native population therefore seemed to exhibit no signs of a pestilential climate. While on the contrary, throughout the Island, they afforded the clearest and most extensive evidence of its healthiness, and suitableness to their constitutions, in the great number of old men and women, to be found in every village.

As mere old age entitles to the respect and deference of the whole community, the old people, as elders and leaders, always came forth to meet us; and with few exceptions even to the age of 106 years were found hale, if not vigorous in mind and body, much interesting information being gotten from parties 80 and 90 years old, with memories as fresh apparently, and minds as clear as they ever had been, men even of that age tak-

ing their share in almost hard work. Although this is a double testimony in its favor, it is as impossible, nevertheless to deny, as it is painful to acknowledge, that hitherto, these coasts have proved most fatal to Europeans, that sailors, soldiers, and civilians, have alike fallen victims to its fever, and on Chedooba an ample share; nor may there be a doubt thrown on the attention and ability of those medical officers whose exertions have yet hitherto failed in all attempts to stop its fatal progress. Whether therefore this country is one from which the European is to be ever thus excluded, or whether in the progress of all other improvements, and also if the character of his treatment by himself or by others may be found hereafter to enable him to make here also his temporary home, and introduce, with his wealth, his intelligence, his energy, and above all his religion, their attendant blessings, must apparently be left for the future to shew. But giving to the facts, which constitute this favorable evidence, no more than the weight, they are strictly entitled to—and others may be found perhaps to entertain with me, even more than the hope, that some such improvement may eventually render the climate of Chedooba, and also that of Arracan, no longer so fatal a bar as hitherto, to the advance in these provinces of the Civilization of Europe.

Division V.

Manners and Customs, Education, Language, and Religion.

The population of Chedooba is, with few, and trifling exceptions, entirely Mug, and from their isolated position, its inhabitants afford perhaps a truer exhibition of the character of these people than their brethren of the main land, or of Ramree, whose intercourse with their fellow subjects of different parts of the Peninsula, has by no means been attended with benefit to their original and national character. The Mugs of Chedooba, are a simple, moral, and inoffensive race, of frank open manner, cheerful, and forgiving disposition; exhibiting much independence of feeling, the consequence of a thorough contentment with their lot; respectful to their superiors, though perfect strangers to the crouching servility of the Hindoo; throughout their character, exhibiting those traits, which are most readily appreciated, and admired by ourselves, some which might even be copied with advantage, and which, if duly fostered and encouraged, offer with his freedom from all the obstacles of caste a ground work whereon to elevate the Mug high, if not the highest, in all the benefits of European civilization of all the natives of the East, subjected to our rule, from whom in almost every point of character, as in appearance he differs most widely; in the last particular less to his advantage, than in the

former, as his features proclaim him a Tartar, and are but rarely found modified with the more regular ones of the people on whose border he has so long inhabited.

The only custom among them, (other than the idolatrous ones of their worship of Gaudma) which appear at all repugnant to our own feelings, is that of a plurality of wives, which is permitted; but is a permission seldom taken an advantage of, especially in Chedooba.

The most notorious case met with, was in that of the Soogree of Mengbieng; a fine intelligent man of 45 with 3 wives, and a family of 18 children, from 24 years old to 6 months, all living in the most perfect harmony and peace under the same roof. Although in every respect *bona fide* wives, yet the two younger observed a dutiful attention and submission to the first and eldest, who was considered as the governess of the household, the others in regard to her, conducting themselves more as daughters. It was a curious and not uninteresting family scene, and I spent near two hours with them, enquiring, without the slightest offence to husband, wives, or children, into the peculiarities, and relative duties, and stations of a style of family partnership I had never before witnessed so extensively, and was answered with the greatest frankness and good nature, our remarks often causing a general laugh. The elder wife had supplied her share of the family circle, not so the two younger, and at least in this case, polygamy does not threaten a cause of depopulation to Chedooba.

Marriage is merely a civil contract unmixed with any religious ceremony or sanction, and is the result of mutual preference, as well as of the interposition of friends and parents. Those of the would be bridegroom proceed with fruits, flowers, wearing apparel, and ornaments to the parents of the bride, and seek her formally in marriage. If granted, the presents are left for the bride, to whose house the bridegroom proceeds in the evening, and where he resides and serves his father-in-law, not as a servant, but as a partner or a son for an indefinite period.

As with mutual consent the ceremony is performed, so with the same is it annulled, and though this privilege is not unfrequently acted on in the more populous towns of Ramree, and the Main, yet it is merely so in Chedooba, and three cases came under observation, where, although separation took place on the side of one of the parties, the other denied all acquiescence in the transaction, and with the community in general esteemed it a desertion. One was on an interesting case, arising from the conversion of the husband to Christianity; to all attempts at reconciliation on the part of himself and others, an obstinate denial was

returned by the wife, while he persisted on his part, on keeping and educating his children, two sons.

On Flat Island, the Soogree and his dame, had been man and wife upwards of half a century. They were both verging towards 80 years of age, and their direct progeny on the Island, with themselves, amounted to 50 souls.

In the case of mutual consent, both parties are at liberty to form a new connexion, and there are no such matters as family names, whereby such intermixture of families may be perceived. Not the slightest relation exists between the names of children and parents. All appellations have a meaning, the males generally of some enviable moral or personal quality, or happy anticipation of the future. The females of some tree or flavour, or feminine Mug grace.

Marriage generally takes place early in life; as soon as marriageable, the females assume a particular dress, a species of jacket, which is changed on that happy event to a larger covering over the upper parts of the body. The lower garment, both before and after entering on that state, admitting perhaps of improvement on the score of ampleness; on widowhood, the maiden dress is again assumed. An ample cloth around the middle, and a fellow one, thrown over the shoulders when cold, constitute the covering of the younger males, who as bachelors live in a distinct part of the village. The elders wear a white jacket shorter or longer; an article of this sort, made of dark coloured glazed cotton, slightly padded with the same material is frequently used by the elder males in the cold or fine season, and is brought from Ava, which also supplies a gaudy silk cloth of curiously interwoven colors, but coarse workmanship, which is used as a waist cloth on high occasions by all who can afford it. The common cloth is a cotton plaid of blue shades, and of home manufacture. A finer cloth or turban of white is used by the men, and interwoven with the hair, which, in both sexes, is of a beautiful glossy black, and great length and luxuriance, it occasions with both the only labour of the toilette, and they are very proud of this natural ornament. With the females, it is simply formed into a roll or knot at the back of the head, being parted for that purpose in front, and brought along the side of the head in a manner not uncommon in England; much good taste is sometimes displayed by the simple addition, as ornament, of some favourite flowers. Children of both sexes are frequently ornamented with silver rings on the wrists and ancles, and a string of silver coins around the neck; these are usually heir looms in a family, and in turn, grace all the young olive branches as they shoot forth.

Infants are slightly, if at all clad, and there is no custom among these people tending to produce any deformity of limbs, which from the birth are allowed free developement, nor is any care taken to prevent exposure to either sun or rain. Infants are seen in the houses of all the villages crawling about alone, and as soon as old enough to get down the, so called, stairs of the raised floors, they are to be found in groups amusing themselves without any controul, and naked as when born. The girls clothe when 5 or 6, the boys seldom submit to the restraint till 8 or 9 years old. This freedom enables them to exhibit in youth well made persons, tends to much personal activity, and inures them to subsequent exposure, without any fear of ill consequences. The government of their children is mild and affectionate, and is repaid by duty and attention in after life, and there is little evidence to be derived from their noise of crying, of the number of children who flourish in a Cheedooba Village.

Though well proportioned, and exhibiting a good share of muscle, especially on the lower limbs, they are a small people, and of moderate stature, the tallest among them not attaining a height of 5 feet 10 inches; 5 feet 4 or 5 inches may be the average; the females less.

Though with decided Tartar features, all search for any thing approaching to what constitutes in our ideas, beauty, must be in vain, yet there is an open expression of frankness and good humour, in the countenances of many of both sexes, and very commonly so in age, which with us must be allowed to pass in its stead, and among themselves constitutes that envied distinction. But truth compels to the avowal that this is found oftener with the males than females. The colour of the skin is not a black but that of a mulattoe.

Of ornament, when grown up, neither sex have any; but a practice designed for such purpose in all other countries, is here transferred into one of every day usefulness; with both, the lobe of the ear is perforated, and the large hole fully occupied with the ever accompanying cigar. A roll of paper fills its place, when not present, in order that the capacity of this natural cigar case may not be diminished by contraction; where it can be afforded, silver is used instead of paper, and sometimes the white pith of a particular wood is used. When about to make a journey, the dimensions of the cigar are greatly increased, and it is then as thick as the fore-finger, and from a foot to 15 inches in length; a party on the road with both ears thus mounted, looks not a little singular. Neither the practice of smoking, nor the method of carrying the cigar is confined to the men, and from infancy both sexes are accustomed to the indulgence;

but as before noted it is of a most mild quality, and made principally from a leaf found in a jungle, with but little tobacco. It is the only one of an excitable nature in use, if indeed the mild mixture they smoke, is so at all. The only beverage is water, and though the licensing of shops for liquor and opium, is, in the more populous towns of Ramree, and the mainland, gradually tending to deprive their neighbours and countrymen of those parts, of the invaluable inheritance of national sobriety, Chedooba is as yet clear of the infection.

The acquirements of education are the result of the labours of the priesthood, who thus repay the maintenance allotted them by the public. All classes receive a like attention, the extent of which goes to the learning to read and write; of this benefit however, the children alone of the more populous villages of Chedooba principally partake, they alone being large enough to maintain continually an establishment of the sort, though every village has attached to it, a Riong or Church, and a School room, to which occasional visits are paid by itinerant priests. Spinning cotton, and the use of the loom are branches of domestic education, learnt by the females at home; while as soon as he is old enough to bear its weight, the boy sallies forth with his parent, and his dâh, to assist in clearing the jungle for cultivation, or in felling it for fuel.

The skill in the use of this weapon, thus learnt, is very great; in shape it resembles our bill-hook, with the sharp edge along the outer or convex side, but it is without the crook, longer and heavier, the largest in this latter particular fully equalling that of one of our own axes, with a blade nearly two feet long, and about 4 inches in width. With this weapon, the ease and rapidity with which the largest trees are felled is very great, and the Mug is perhaps as dexterous a woodsman as the Kentucky man himself; the facility with which acres of large trees were felled on the hill tops, to clear them for Theodolite observation, gave ample opportunity to note and appreciate his ability in this point, as from it was reaped a most valuable and correct means of effecting a survey, which without it would have been greatly increased in labour and sources of error, as well as occupation of time.

The tree is not felled so low down as with the axe, but breast high, which raises an objection to felling with it for timber, though not in mere clearing for cultivation. Every man in the Island has his dâh, which is his constant companion, and is in constant use, to fell his timber, to make his cart, his house, his canoe, his baskets for fishing or other purposes, and last not least to chop up his curry. A Mug without a dâh might as well be without a right hand.

In felling trees of very large diameter, an axe is made use of, it is a sort of thick chisel, with about a two inch blade, inserted into a handle knobbed at the end for its reception, where it is further secured by a seizing of rattan. This is a formidable weapon in a Mug's hand, and he fells his tree with it quickly and clean.

With a disposition greatly averse to any continued or fixed labour, the Mug yet is always on the move, either at work, or half amusement with his dâh in the jungles, or wandering through them from village to village; this constant out door exercise and use of limb, gives a suppleness, and developement of muscle to their legs and thighs particularly, which constitute him an untiring walker, and is very perceptible even in very old age, rendering him to the last independent of all other means of progression, and able still to indulge his love of rambling with those he was born with.

I found to my astonishment that the oldest man on the Island, numbering 106 years, had walked from his own village, a distance of 13 or 14 miles, in order to meet me at another, and walked back again on being disappointed. He subsequently came two miles from his own village to where we did meet, and during our interview, I could not but be much struck with the exhibition he made in illustration of the above remarks. While on his body the skin lay quite loose, and was perfectly festooned with wrinkles, his legs and thighs exhibited as much plumpness, and fulness of flesh and muscle, as they could have done, when they had performed but half their over century of work, and though in other cases I found old men, whose faculties had broken down under years, I never heard of one whose limbs had given way, or who was bedridden; a staff was all the assistance the above old gentleman required.

Beside the above out door duties and amusements all the heavier labours of agriculture fall to the share of the man; but the cleaning of the rice for ordinary consumption after it is brought in, is done by the women, with the instrument in common use for this purpose in other parts of India. This falls to her lot as one of the household duties which are assigned to her; but in none any more than in her general treatment and place in society, has she ought to complain of. Besides her household affairs, she goes to market, and prepares the family meal, at which she invariably eats out of the same dish with her husband. No restraint is imposed on her liberty, and she may attend all places of amusement and religion, unaccompanied by her husband. In the performance of religious duties, the women are more punctual and attentive, than the men. But she is restricted during her monthly state from

having any connexion with them; to this restraint is added, that she may not touch her husband's head, save for the purpose of cleansing it, when she makes obeisance before commencing work; that she may not touch the sacred books nor the consecrated image of Gaudma, nor pass over the shadow of a temple or any place containing the said image, but on foot and barefooted.

The villages of the western circles are, strange to say, in better condition, and cleaner than the eastern ones, and the houses display more neatness and attention to repair.

In erecting his hut, the Mug has only to purchase materials, the neighbours assemble as soon as these are prepared, and his house is established in a very short space of time. They are all constructed on the same plan, raised on poles from the ground several feet; the flooring and walls are of bamboo matting, wove in a neat pattern; the roof of the Ahtup leaf neatly covered with a frame work of bamboo to prevent its being injured by the monsoon winds.

All apartments whether sleeping, sitting, cooking, bathing, or private, are on this raised floor, through which all refuse finds its way underneath, where what is left by dogs and vermin, serves as manure for the garden attached to each house. Shelter is also afforded underneath to the poultry, of which they have much, and sometimes to the smaller kine. The kitchen range is formed by a round tray of moist clay about 3 feet in diameter and 5 or 6 inches thick, leaving three small projections or columns on its centre, whereon to rest the cooking pot, when dried in the sun, it is fit for employment, and effectually protects the combustible floor; the furniture consists of a few reed mats, and each member possesses a wooden pillow, these are the whole amount. The rice for the family meal is served up in a wooden bowl, around which the whole party squat; the fish, flesh, fowl or vegetables are served in small coarse China tea cups, the right hand, and the mouth are always washed before, and after the meal; water is the only beverage at the meal, and when it is over, pawn is in use, and the cigar lit. Two meals suffice during the day, the one at 7 in the morning, the other at sun down, and both are very soon despatched. On taking a journey the meal is carried in a few leaves bound up with a rattan; on such occasions they have also a practice of cooking rice, which I believe to be peculiar; it is partly boiled, and then pressed with force into a bamboo, with a further portion of water, and when full, the bamboo is put into the fire, and roasted. The rice within, when dressed, thus keeps for many days, and a bundle of these bamboos is the simplest

manner of carrying more than a day's provisions through the jungle. When to be eaten, it is split with the dâh ; the rice is formed into a kind of semi transparent jelly of strong consistency with the soft inner lining of the bamboo firmly attached to it, which is eaten with it. When baked with milk instead of water, and with the addition of a little flour, rice cooked in this manner, is described as quite a luxury.

As in the construction of his hut, so in all other labours and necessities, the readiest assistance is rendered by every one to all ; hospitality is universal, and the last grain of rice will be cheerfully shared with the stranger ; every village has its traveller's house, and he who occupies it is the general guest. Besides being too independent to beg when able to work, amongst a people so disposed charity has no place, or rather the universal hospitality is exalted into that virtue. At a late period when the whole province suffered from the visitation of cholera, hundreds of children were orphaned, but neither were they sold as is common in India, nor was the assistance of Government called in charitable aid for their support ; all were adopted at once into families of neighbours or relations, and treated as their own sons and daughters. No part of the revenue was sought to be remitted, on account of the general calamity, but all was paid.

The Mug of Chedooba is strictly honest, no such thing as theft is known among them, and even in the more populous towns, it is most rare, if known, for a Mug to be brought into court on such a charge. In their dealings with one another but one price is asked, though the simplicity and honesty of such a custom is giving way before the worse example of the Bengallee in the larger towns ; but no Mug will degrade himself by a charge of 'customs' on the purchaser, for the benefit of his servant. To this may be added that in all my experience of them, I do not know to have had occasion to entertain even suspicion of their word. The Mug will not bear the restraint on his time, or his will, necessary to qualify him as a servant ; and though hard labour, when imposed, is submitted to with his universal cheerfulness, it is never freely chosen. Their respect and esteem of Europeans is very great, and any services in their power, were cheerfully performed for our party with no object beyond that of giving satisfaction. On many occasions I have found it necessary to despatch a messenger to the ship, both to take, and to bring communications or supplies ; the parties were always punctual to the time they would appoint for their return, but would never take a pice in remuneration, seeming hurt even at the offer, and whatever return was made them was always obliged to be given strictly as a present, and as a pledge of

approbation and kindly feeling. When engaged in the endeavour to bring down from the West Hill a large tree, which I was anxious to obtain, nothing could exceed the cheerfulness with which the labour was undertaken, in fact so much so as to give it more the character of an amusement; with the exertion of all the able bodied men of the Island, amounting to about 1,200 they were yet unable to move it after many days trial; and they requested assistance from us. With a party of twelve men, and purchases we joined them, and with this assistance the ease with which the tree was moved, astonished and delighted them; the labour was subsequently given up as occupying too much time, but up to the time of their dismissal to their villages, nothing but cheerfulness and good humour prevailed.

Not the slighest inconvenience was occasioned during their stay of 14 days in the neighbourhood of the village, which was our head quarters; parties were sent for their provisions from their own houses, and not a grain of rice or a fowl was demanded from the village, which was just as quiet, with the close neighbourhood of a body of men, as if no one had been there, the jungles affording shelter by night. A dinner was given to all who would remain to partake of it, on their giving up the work, the only return which could be made in approbation of their cheerful and efficient labour, and a promise was afterwards procured for the remission of a portion of the annual taxation, to those villages who were called on to render the greatest assistance in the labour of the Survey.

In the case of one of our Bengallee attendants who had struck a Mug, of which complaint was made to me, was afforded an evidence of their forgiving and unrevengeful disposition. The man though much hurt with the blow of a stick, and indignant at it, expressly requested on the offer being made, that no punishment might be awarded, all he required was that such treatment might not again be repeated. They are very fond of public amusements, which are generally given in honor of the exertion of some work of public utility, at these, plays, dancing, and wrestling take place; of the former two, not much may be said; of the latter, the most remarkable feature exhibited, appeared the total absence of all angry feeling on the part of the antagonists. Boxing is also at such times another exhibition.

Old age is treated with great respect, and the elders of a village, even when not officials, are consulted and listened to in all matters of debate relative to the interests of the community. When addressed they are called 'Appogee,' a title of respect.

From his frequent indulgence in bathing, the Mug may be inferred to be partial to cleanliness, but it is more with the idea of cooling his body that so much water is used, his head being seldom wetted, and on this score there is room for improvement in his character, as relates to person and to clothing, but especially with regard to children, whose great freedom from any confinement, calls perhaps for the greater recourse to means of cleanliness in their case.

The language of the Mug is with slight difference, the same as that of his neighbour the Burmah, of which it would seem to be a mere provincialism, and the similarity in this, in feature, religion, and all leading customs, and points of character, proclaim them both to be the offspring of one common stock. A difference in the pronunciation of certain of the letters, constitutes the principal distinctions between the two languages, and of these distinctions, that affecting the Y and the R stands first; the Y with the Burmese is always changed into an R by the Mug. The language in general use sounds uncouth and indistinct, but when properly spoken is said to be otherwise; it is difficult to acquire by Europeans.

The character again is the same as that of the Burmese, so that these people have all the benefit of the productions of the Moulmein press, which are printed in that character, and amongst these that of a translation of the whole Bible into their vernacular. Their own books which treat principally of religious or philosophical subjects are impressed with a style on dried leaves stitched together, and rubbed with the finer produce of the Petroleum wells to preserve them; paper is only used by the district officers of different grades. The religion of the Mug is that of Boodh, and in Chedooba I believe, the only exception to this, is to be found in the Christian convert, who has been before mentioned; in Ramree and the main coast, Mug Mussulmans are not uncommon.

How far the character of the Mug has been moulded by his religion, or how far it is the result of mere natural constitution, is a speculation well omitted here. But in the mild morality inculcated in the code, and practised in the conduct of its professor, at least an adaptation of the one to the character of the other is observable, beyond the common case in these matters, and is both pleasing in itself, and betokens wisdom if not goodness in the framer of the system; this much may be truly said in its praise, but to this is all favorable opinion I think to be limited. The sanction by which its observances are enforced are absurd, and unworthy the attention of a reasonable being. Its history a most childish invention, and is comparatively commendable again in its freedom

from the obscenity which stigmatizes other religions around it. It stands also peculiarly marked off from them, based on its principles of perfect selfishness, in not even acknowledging fear or respect for a Supreme Being.

Annihilation is the goal to be attained, not participation in the perfections, nor reward at the hands of deity; in reference to whose anger or approbation, not an action to be perfomed has the slight regard, even if his very existence be at all admitted. A certain amount of good deeds registered in the sacred books are to be performed, in order to entitle you to a happier state of existence for another life, which is again to be a scene of endeavour to the same purpose, and this gradual improvement in successive periods and states of existence (if merited) is to continue progressing till a certain point of goodness is attained, when as he can then become no better, existence itself is of no further use, and as the reward of all this labour, in the attainment of perfection, the fortunate being is annihilated; a consummation to which their object of worship, Gaudma, arrived in the most limited number of existences ever yet run through On the other hand the usual terrors of transmigration are held out, and a fish or a dog, or some less reprobate animal, is to be the lot of those whose misdeeds prevail against their good ones Some infractions of the law indeed are of themselves sufficient to ensure such punishment, and I was gravely assured by the principal man on the Island, who was ordered to attend me throughout it, that if unluckily I did shoot a wild pig, hereafter I should meet my desert, in not only being turned into, but actually shot by one myself.

This person, the Soogree of Chedooba, was otherwise a very intelligent young man, and though the most zealous adherent of Boodhism on the Island, yet he seemed but half pleased with it, and was fond of bringing its merits into discussion, and never shewed the slightest symptom of annoyance at the laugh which a relation of its absurdities sometimes called forth, and which his better reason told him was well deserved. He had been at school at Ramree studying English, when called away to succeed his father in the Soogreeship 4 years since; and he had then built a *King* or Church, a work which had fairly committed him to as strict observance of all other good works, saving celibacy, as if a priest. In observing the prohibition to eat of any thing which had ever enjoyed life, in order not to encourage its destruction, he would not touch of food wherein were eggs or milk; but in the list of the protected the poor fish are not included, and he laughed heartily while taking advantage of his privilege, and making a sound

meal of some delicious oysters all alive. When on board the '*Childers*,' he reconciled his conscience to the indulgence of eating salt pork with the reflexion, that as it had been killed so long, and so far off, it was impossible it could have been killed for him.

The observance of this prohibition is the only one generally practised in the Island, and that more through habit, than with a sense of its religious necessity. In short, their religion sits but lightly on them, maintaining its supremacy more because it is unopposed by any other, than from any attachment of the people to its precepts or practice, and when discussing, and ridiculing its absurdities, as brought forward by our friend its advocate, the laugh and joke was fully participated in by all the hearers, who appeared much to enjoy and even promote such a scene.

All the Pagodas are in a state of ruin or decay, or rapidly approaching to it, and broken fragments of the image of Gaudma lie strewn about, without any one attempting the restoration of him or his temple. The old Christian before mentioned, had taken forth his god years ago, and both broken, and deserted him on the high road side, where his remains were pointed out to us without either mark or expression as to any impropriety in such conduct, but contrariwise, the forlorn state of the poor idol excited laughter instead of commiseration. On a remarkable hill in the centre of the Island stands the principal Pagoda in the common ruinous state; no pious hand, had for many a year attempted to annihilate himself by its restoration; but whether in waggery or not, its chief ornament consisted of a cut glass decanter, turned bottom up, on a bamboo stuck into its pinnacle, and excited the laughter of our native party, as much as our own.

The Mugs are superstitious, and though by no means more deficient in personal courage than their Burmah neighbours, yet exhibit in some points a weakness, which might cause a doubt on this point. No Mug will travel alone in the dark, nor even on moonlight nights, for fear of evil spirits or Naths; but when together 'three Mugs will face the devil.' Nothing but positive order and accompaniment by us would induce them to trespass on many of the hill tops, which were inhabited, they said, by these demons, but with us not only would they advance fearlessly, but did not hesitate to fell the trees, though the blame of such sacrilege was always laid on us, in direct apostrophe to the supposed injured inhabitants. On felling any very large tree one of the party at work on it, was always ready prepared with a green sprig, which he ran and placed in the centre of the stump, the instant the tree fell, as a

propitiation to its spirit which had been dislodged so roughly, pleading at the same time the orders of the strangers for the work. In clearing the top of the South Hill, the Chupprassie, whom I had sent to see it done, though attended to the summit with the labourers all ready prepared, was forced to take a dâh, and fell the first tree himself, before a Mug would make a stroke, and was considered to bear all the odium of the work with the disturbed spirits, till our arrival relieved him of the burden. On such occasions, with their customary cheerfulness, the whole body would join in the laugh at the folly of their own superstitious fears, of which they latterly seemed half ashamed. Several of the circles are without any priest at all, and and those who are found on the Island do not suffice for the instruction of the children, a subject complained of, and offering an opening of favour to these simple people, which has only to be afforded in order to be appreciated and embraced. Any person of any religion has only to assume the dress and follow the observances of the sacred book, and he is at once acknowledged a bona fide priest.

At Meugbreng an old priest paid me a visit, and begged alms, the only case I ever met with, and not only unnational, but most unpriestly; he avoided the prohibition to touch money by taking it through his yellow gown, and then handed it to an attendant pupil; he had been a Soogree in one adjoining circle, and gave up his office in order to get worshipped as he said. He was nearly 80 years old. No distinction of caste is recognized by their religion, and the priest both eats, and will accept the offering of all and every class. There exists however on the Mainland, some distinction of this sort, observed among the laity; they are the remains of the political quarrels and dissensions of the Mug Raj, and are fast wearing out. They consist in feelings of prejudice against the eating and drinking with those who are descendants from the captives of former wars, to whom the most menial offices were assigned; they have no existence on Chedooba, nor will have shortly elsewhere among the Mugs. The priests are forbidden even to look at women, even their eyes may not wander above a limited distance beyond their feet, lest they should light on the forbidden image; he may not eat after midday, when his second meal is taken, his first having preceded it about 6 hours. The dead are burnt, the bodies of priests with great pomp and ceremony, after being preserved a considerable time, and the bodies of all with decency; this constitutes a very meritorious deed when performed with the remains of a stranger.

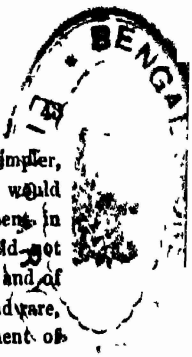
Chedooba as observed, has not many strict votaries of Boodhism; but its effect in the neighbouring countries where acted on in strictness, is

curious in some particulars. It has a direct tendency to destroy all feeling of gratitude, the real favor conferred being on the part of the receiver, in the opportunity afforded by him to the giver of performing a meritorious act. Robbery and even murder have been committed for the sake of the means of erecting a church, or constructing a road, or a tank, and the end has consecrated the means. These good works are performed in Chedooba as elsewhere among Boodhism, but I was inclined to think with motives more pure, and that the general character of its inhabitants would justify the opinion, that the reward outwardly and inwardly reaped by the performance of such public benefactions, is inducement enough to their execution there.

The construction of such as above, of wells, traveller's houses, or the keeping of any of these in repair, renames the party undertaking them, and he is thenceforth only known by the honorable title of the 'well digger,' the 'road maker,' the 'house builder,' &c.

The old Christian above mentioned, is the only one on the Island, and is a sincere, and pious old man, deeply interested in the improvement, social and religious, of his Island countryman. He is intelligent and well informed for his means, of the mildest manners, and benevolent appearance; though between 75 and 76. His pittance is small, 5 rupees a month from the American Baptist Mission, of which he is an assistant; he is listened to with great attention and curiosity, but, unsupported as he is, and with but little encouragement, his success is small.

Ramree, the chief town of the Province, enjoys the privilege of a School, where English is taught, and Chedooba, as a part of the province, is entitled to send its quota of pupils. But the habits of the people, and even the regulations of the school, deprive its inhabitants of making almost any use of it. Payment is required; there may be no friends at Ramree to take charge of the children, and the Chedoobans are attached to their Island too much to allow willingly even their children to leave it for any length of time, very few parents, therefore, and those chiefly the Island authorities, give their children the benefit of the advantage offered by the provincial school. But the payment which is begrudged to the Ramree establishment, would be willingly made even in higher amount to one at home; both children and parents in Chedooba are all common friends, and mutually known; and such an establishment, which the deficiency of priests, for educational purposes, points out as wanted, would soon meet with that most grateful appreciation of the boon, a large attendance, nor in other respects would it be without reward to its founders. Not a whit behind his Ramree brother in intelligence and



desire to improve, and especial desire to learn English, the simpler, and more honest and moral character of the Chedooba scholar, would give to him the preference, for filling those grades of employment in the public offices open to him; while the grateful reflection would not be wanting, of affording a valuable means at once of improvement, and of the maintenance in fact from contamination, of a character high and rare, to perhaps the most interesting community under the Government of British India.

Division VI.

Geology.

The Geology of Chedooba presents characters of so much general interest, that any report on this Island might be looked on as imperfect, in which the subject was wholly omitted.

But as it is intended in a separate notice to give such details, accompanied with specimens, as may render the subject capable of investigation, by those able and interested in the science; the present one will be here confined to a mere statement of the general features exhibited. The elevation, out of the sea, of large tracts of land by effect of volcanic action, has in more modern times been noted as occurring on the coast of Chili in South America, and in the territory of Cutch in this country. In the former case some doubt has been thrown both on the fact itself, as well as its amount; and the circumstance of a similar phenomenon having taken place within the memory of man, not only throughout the coasts of Chedooba, but extending over all the shoals and islands from the Terribles, off the north end of Ramree, to Foul Island, will be held a not unwelcome addition to the evidence yet gleaned of the occurrence of such extensive changes of level in the present day. The above are the limits of the survey on which the '*Childers*' has been employed, over every part of which the evidences of this elevation were seen, and in many places accurately measured, and it includes the whole of that irregular collection of Islands and shoals, which, projecting far into the Bay of Bengal, yet maintain the general direction of the main land coast near it.

But these limits are not to be taken as those which bound the elevation, which with little doubt, from similarity of formation, will be found to extend north and south and east, over all these parts of Arracan, so peculiarly marked by the intersection of deep narrow, salt water creeks, from Akyab, even perhaps as far south as Cape Negrais.

The line which was under observation is about 100 miles in length, varying from 20 miles in width, to that of a mere patch, according as

opportunity of notice was afforded by the existence of rocks or islets above water, and its general direction is from N. W. b. N. to S. E. b. S. The elevation has been greatest towards the centre of the line examined; at the Terribles about 13 feet, on various parts of the N. W. reef of Chedooba 22 feet, at the north point of the Island 16 feet, at the centre of the Island on the west coast 13 feet, at the southern end 12, and at the Islands south of it, as far as Foul Island from that to 9 feet.

It would also seem to have been greater on the western limit of Chedooba, than on the eastern, a fact not however ascertained from the extensive level plains which exist on this side, whereas on that, measurement was easily made on the sides of perpendicular rocks. This elevation occurred about 90 years ago, and there is, now living, a party 106 years old, who was then 15 years of age, and had been accustomed to fish over a portion of the now upraised land. On the coasts of Chedooba, its traces are in most parts as clear as could be wished, bounding the natural jungle with a bank of greater or less height, composed of sand or of shingle—the plain beyond being thickly strewed with coral and shells, such as are now growing on the shore. The natives are all perfectly aware of the bank having formerly been the limit of their Island, and even the youngest would point it out, if asked to do so.

The old man above mentioned was not in Chedooba, but at Ava, when the event happened, he had gone thither that year, and experienced at that place the violent earthquake which accompanied the elevation. From other natives of great age, I received information of the occurrence, not direct, but traditionally from their parents.

The earthquake was very violent, the sea washed to and for several times with great fury, and then retired from the grounds, leaving an immense quantity of fish; the feasting on which is a favorite story throughout the Island; no lives were lost, no rents in the earth occurred, nor fire from the volcanoes of the Island.

The above is not the only event of the sort traditionally known, another occurred a century previous to it, and these elevations are considered periodical by the inhabitants, occurring every 100 years, and the next one is even expected in the course of a few years, and would excite but little surprize. Traces of a third beach line were several times thought to be found, before this information was given; but on the western coast, about half way down, an evidence of its truth was afforded; a remarkable column or rock, about 40 feet high, standing on the beach shewed the remains of a second line of rock. Oysters adhering to it, at an equal elevation of 13 feet above the first, as it was again, above the one, which on

all the rocks of the western coast distinctly points out the limit of the present high water. On Flat Island was subsequently found three distinct beaches, and the coral found on the different extents of the Island clearly proclaimed in their relative states of decomposition, the difference of their periods of exposure.

The external and more apparent means by which these great changes are effected, are as yet known, I believe, quite peculiar, and exhibit features which may be valuable in assisting investigation into the immediate causes of volcanic violence.

Every one of the mud volcanoes of Chedooba were visited, and examined as well as those of the neighbouring Islands, south of it, and on none with strictest search could be found any traces of direct fire, or of those peculiar formations produced by that agent, gas alone seems to be the one immediately occasioning these strange exceptions to the general character of volcanoes. It is no doubt inflammable gas, and the light given by some of them in activity has been so great as to enable a book to be read by it at a distance of 9 miles, as was credibly related to me as having occurred at the last eruption of the large Volcano of Meugbreng, the largest on the Island: that heat is present in the more recent ones, I found it myself to be the case, in one examined on Ramree, where the mud brought up on a bamboo from, 17 feet in depth, shewed a temperature of 92° 20' above that of the atmosphere. But a white stone like chalk found on all the large volcanoes, which was considered as the common greenish sandstone discolored by heat, was the only substance found, which exhibited a trace of no intense heat, and in this case the abstraction of color alone was effected without the least change of composition or form. The large volcanoes of Chedooba are four in number, they are detached mounds rather than cones, varying from 100 to 1,000 feet above the level of the sea, composed of a stiff grey clay with large quantities of singular fragments of stone, their sides much cut up by the effects of rain, their summits quite bare, and from 240 to 50 yards in diameter; on these are disposed cones of stiff clay from a few inches to 4 feet in height, and the same variety of dimensions, in diameter. These are hard on the outside, but filled half way up with a thick well mixed mud, which every now and then exudes from a hole at the sides or summit*, at the bursting of a bubble of gas which occurs every 3 or 4 minutes. There are two other volcanoes of small dimensions, and but little elevated above the plains where they are found to exist; they are composed of the same

* The readers of the Journal will be struck with the similarity of the description to that of the mud pools at Hinglaj —*As. Soc. Jour. No.* 94.

soil of mud, emitting large bubbles of gas; and besides these there are two spots whence water alone is brought up by the gas. In all these the water or mud is salt, and their number with the four Petroleum wells which are in constant ebullition with gaseous exhalation, seem to exhibit this agent as powerfully, and extensively at work, throughout the Island. The minor volcanic vents seldom exhibit any change; the larger ones when in eruption, which generally takes place during the rains, either throw forth to a considerable height accompanied with flame, fluid mud, which spreads over a certain extent, or the surface effected boils with the escapement of gas, bring too consistent to flow or be thrown up. The angular fragments of stone mixed with the mud are clearly torn from the strata, through which the vent is forced, and small portions of copper ore are found attached to some.

Besides the volcanoes seen, one was described as existing under water on what is now a reef N. W. of Flat Island, and which a few years since gave forth flame when in eruption. But independent of such direct evidence a mere examination of many of the reefs would convince of the fact of the bed of the sea being equally affected with the surface of the land.

I conclude with the observation that the clearness of the jungle of Chedooba, the healthiness of its climate, and the late clearing of the principal hill tops for purposes connected with its survey, afford for the ensuing fine season a most interesting ground whereon to examine, more minutely than either time or ability would enable me to do, the peculiar geological features thus briefly noticed.

Examination and analysis of a soil brought from the Island of Chedooba by Capt. HALSTEAD, *of H. M. S.* '*Childers*,' *by* HENRY PIDDINGTON, *Offg. Curator Museum Asiatic Society.*

This soil was sent with a collection of soils and minerals from Chedooba, for the Museum of Economic Geology, with a request that a report might be made upon them. I was immediately struck with its resemblance to the finest Georgia Sea Island cotton soil which I analysed in 1838, and which has such a peculiar appearance—resembling a mixture of sand and charcoal—that it immediately attracts attention; I thought it well worth while to ascertain their identity. To show how nearly they are like I set down in parallel columns the results of my examination of the Chedobba soils and of the American one; the last abridged from my paper on the cotton soils of America, India, Mauritius &c. in vol. VI. of the Transactions Agrl. Soc. of India, p. 198.

APPEARANCES.

American Soil.	*Chedooba Soil.*
1. When sifted, like fine dark-grey sand and charcoal dust, artificially mixed.	The same.
2. The sifting coarse sand, fragments of sandstone and shells with pieces of dried and charcoal wood, or charcoal in all states from charcoal to soft lignite.	The same, but no shells, and the sandstone in very minute fragments—perhaps owing to the specimen being in very small quantity.

With cold water.

3. When agitated settles in a coarse greenish-grey sand, with a layer of black matter above it.	The same.
4. When left for a day or two water is tinged of a pale yellowish colour.	The same.

Heated in the Matrass.

5. Smokes and gives out a strong peaty odour. Silver leaf and litmus paper are discoloured and a brown smoky-tasted oil is deposited in the tube.	The same. The silver leaf I think more discoloured; the litmus paper not so immediately. In all other respects the same.

Analysis gave

Saline matter, Mur. of lime and soda, but no potass.....	0.20	Saline matter Mur. of lime and sulphur of soda, but no potass	
Vegetable matter: mostly lignite or peaty powder with a little water.	3.20	The same	2.00
Iron, protoxide.	1.00	Protox. (and peroxide in small quantity ?)	1.75
Carbt. of lime	2.76	Carbt. lime.....	3.00
Alumina.....	0.20	Alumina	0.40
Silex	92.00	Silex	91.65
	99.15		99.05
Water and loss..	.15	Water and loss..	.95
	100.00		100.00

Remarks.

Silex is mostly in coarse glittering grains like pounded loaf sugar, shewing that it is mostly from *disintigrated* and not decomposed rock.	The same, but grains of silex uller and more powdery, silex with them.

N. B.—The smell of Petroleum is owing to a bottle of it having been sent in the box.

For all agricultural purposes these soils may be pronounced so nearly the same, that, in the same climate, the difference would only lie in the amount of produce being a little more or less on the one than on the other. The Chedooba soil contains but one ingredient, Sulphate of Soda, not found in the American, but this is in extremely minute quantity, and moreover seems favourable to the growth of cotton, for the soil of the Tinnevelly district, which produces the Madras, Bourbon cotton, concontains it, as does also that of Singapore, on which very fine Bourbon cotton is grown.

Captain Halstead's remarks on this soil are as follows.

'No. 11, represents the more sandy soil of the eastern circles. It was taken from the neighbourhood of Meugbreng. The circle of that name with the one just noticed (Mrooma) are the most populous on the island, the greatest quantity of exports being produced in these, and chiefly on this soil—a more productive one than its appearance would seem to warrant.'

The importance of this curious soil to America we well know. It may be hoped that ours may be ere long turned to account and that many other spots on the islands and coast, from Akyab to Sandoway, may be found to possess it. From difference of climate, as far as this may affect the cotton, there will be, I trust, little to fear, for we know that the dry months allow time enough for the production of all kinds of cotton, some of very fine quality, on the main land of Arracan; and it is mentioned as a product of Chedooba by Captain Halstead. Very fine Sea Island has been produced on Saugor Island, and the late Mr. Kydd gave me a very beautiful sample of it, which he said was grown there 'upon a sort of black sandy soil' but I could not obtain a specimen of it. I venture to suggest that if a small quantity of the Sea Island seed was sent down to the Commissioner, accompanied with a brief notice, to be translated into the Mug language, and distributed with the seed, stating what it was, its great value when carefully picked, and that no sort of extra rent or claim would be made for this kind of cultivation, we might hear of it again? Small prizes might be offered to those who produced the best samples.

HENRY PIDDINGTON.

List of Soils and from whence taken.

1. Clay of upraised plain, near the N. W. point of the Island.
2. From Rua Tanghee inside the above plain.
3. From the N. W. peak.
4. From the West Hill.
5. From interior of Krae-roue circle.
6. From Eastern part of Krae-roue circle.
7. From Petroleum well of Krae-roue.
8. From West part of Inrooma circle.
9. From central valley of Inland (Inrooma circle.)
10. From Petroleum well of Inrooma circle.
11. From village of Meugbreng.
12. From interior of Meugbreng circle.
13. From Tang-roa circle near Rua Sekkea.
14. From the summit of Pagoa Hill.
15. From Ree-giung (Flat Island).
16. Iron ore from North beach of Chedooba.
17. Copper ore from different volcanoes of Chedooba.
18. Coal or lignite from Tang-roa circle.
19. Petroleum of Krae-roue.

It appeared advisable to attach to the accompanying selection of the soils of Chedooba, the few following observations on the subject in addition to the mere list of places whence each was procured.

In making the selection, which was done during a progress on the greater part of the Island, high and low, jungle and cultivated, and mostly on foot, from the 1st of January to the beginning of March, care was taken to choose soils which should represent those of the greatest extent to be found on the Island, and where specimens have been taken of soils less general, they have still existed over extents ample enough to afford room for the cultivation of that produce, for which they might be considered most applicable. But here it may be at once observed, that no material difference or contrast was found to exist in the soils of Chedooba; a clay of light brown or grey colour, more or less modified, as it had been subjected a longer or shorter period to the effects of tillage or natural vegetation, constituting the bases of all. This clay base being again on the eastern parts of the Island found with a large admixture of fine sand. This clay base seemed to give throughout a permanence to the productiveness of the soil, which must constitute a very valuable quality,

placing it on a par with those which if more fertile or sooner exhausted, from generation to generation the same lands being yearly cultivated, without manure; traces of lands lying fallow it is true, were discoverable in many parts, and sometimes extensively, but on enquiry they proved to be those which had fallen out of cultivation from the decrease of population attendant on the disturbed state of all these countries for many tens of years previous to our occupation of them, and not from exhaustion of the productiveness of the soil. But the clayey nature of the soil appears to make it liable to yearly improvement by a process of manuring of natural occurrence, and which is most effective where most needed, in the newer soils of the lately upraised lands.

During the dry weather the surface of the soil becomes cracked in every direction to a considerable depth, but mostly so in the above lands, where a stiffer clay is found, and into these cracks dried leaves and grass at such times fall in considerable quantity.

A custom is also prevalent of burning the dry grass, stubble, &c., every year at the close of the dry season, the ashes from which are therefore all ready to be washed deep into the body of the soil, by the first heavy rains of the monsoon, which do not close the large openings for some time. The large quantities of Coral and Madrepore distributed over the surface of the new plains, is also by this practice of annually burning very much aided in its decomposition.

I was informed by a native that the extensive new plain of the N. W. part of the Island, which was raised out of the sea about 90 years ago, was only then acquiring its first covering of grass when visited by him 15 years after its elevation. That produce now covers most parts of it high and luxuriant enough to screen a buffaloe from sight, while other parts yield ample crops of rice, and where not otherwise claimed, the jungle is fast taking possession of it, especially over those more rocky portions which have on them the greatest amount of Coral.

The clay soil of this plain is shewn in No. 1, compartment. Embosomed in trees on the old N. W. point of Chedooba, and therefore just within the border of the above plain, stands the village of Tanghee, the soil of its neighbourhood includes a larger amount of vegetable mould, than is to be found in that of the plain so low as will be seen by the specimen of it in No. 2.

This soil may be taken as representing all the cultivated soils of the western part of the Island which lie within the limits of the old beach time. It amply repays all labour bestowed on it, though such labour is at present small, owing to the smaller amount of population to be found in

the two circles of Kam-mad, and Tang-wa, which enclose this side of the Island, than in any of the others with one exception; this want of population arises from other causes than any connected with want of productiveness in the soil.

Chedooba was originally peopled from the eastward, and has never been so thickly inhabited, as to oblige the cultivation of the western lands, which have therefore been hitherto visited, more than inhabited, the want of gratification for his social habits always driving the western settler, after a certain period of sojourn back again to his more thickly populated native village to the eastward. The present Rua-gong of the village of Kammaa was formerly Soogree over but seven houses, in a district where his own village now numbers 300.

The extent of plain between the hills and the sea, half way down the west side of the Island is small, but I here saw one of the largest and richest gardens of plaintains in the whole Island, while as the general produce of the above soil along the limits mentioned. I observed, rice (the staple) tobacco, sugar cane, some cotton, hemp, and indigo (in cleared spots in the jungle); of fruits and vegetables, the cocoanut, plantain, orange, lime, tamarind, yam, bringals, and other garden produce of these climates.

The specimens in 3 and 4, represent the soil found generally in the hilly, and jungly parts of the Island. The largest and most luxuriant trees in the Island are found in the loose friable soil which is found on all the hill tops, in that of No. 4 were flourishing perhaps the very largest on the Island. An oil tree felled measured for a length of 60 feet, 4 feet 6 inches, and 3 feet 6 inches in diameter at its respective ends, and a like tree left as a beacon, on the summit of the hill, measured 21 feet 4 inches in girt, as high as the arm could reach.

In mentioning however the size of these trees, it is not to be inferred that valuable timber is to be looked for as a produce of Chedooba. The largest trees are almost exclusively confined to the hill tops, where they are difficult of access, and of no very valuable quantity, enough however, and of sufficient size, and good quality for all domestic purposes, is every where to be found, nor do I doubt that woods, affording valuable produce of different kinds, would on examination be found among the jungles. The wood-oil tree as has been observed, was found in luxuriance on the west hill, where was also the gamboge, and many trees large and small yielding caoutchouc, some in great profusion. I would here mention while on the subject of the jungles, that no part, in the many miles of it, travelled through, appeared to offer any serious ob-

stacle to clearing for cultivation; there are few parts where a Mug with a good dâh would not fell in one day the trees over half an acre; much of it consists of open clumps of bamboo, and throughout the lower part, open plains of grass of more or less extent are very frequent; in no part which was seen would a person on foot find any obstruction in walking which way he would, and this is stated from experiment, having been over many parts where no native ever before penetrated, not from inability but from superstitious fear.

No. 5 and 6 represent generally the soil of the Krae-roue circle, the Northern one of the Island of which parts are more sandy than others, but the whole very productive. I found the betel in this circle first, and in its jungle, of which it has a due share, the caoutchouc plant of South America; a good deal of Rice for export is here grown.

No. 7 is a soil taken from the neighbourhood of two Petroleum wells, which lie close to one another in this circle, having no doubt one common source of supply. This article, as may be seen, is surely a produce of the soil, which by simplest means might greatly be increased; at present these two wells yield about half of the 300 pots, which constitutes the yearly produce of the four petroleum wells of Chedooba.

No. 8 is a soil taken from the next adjoining circle, eastward to that of 'Inrooma.' Its principal village (Chedooba) boasting to be the capital of the Island. The specimen, and No. 5 may be taken to represent the interior and more clayey soils of all the Eastern circles, including those of Inrooma, Meugbreng, Kyouk-tair, and the eastern part of Tang-rua. While No. 9 taken from a spot in the same circle, is, I apprehend of more limited extent.

Near the centre of the Island, and not far from the large Volcanoes of Meng-breng we came on a small level valley with a stream running through it, on either hand overlooked by wooded hills. This valley whence No. 9 is taken, was the best cultivated spot I had yet found, being one continued tobacco garden and were the best of that plant on the Island is produced. While speaking of this article, I venture to express by belief that parts of Chedooba would produce with proper care and attention, as good tobacco as perhaps any in the world; and here I speak also from experience. My own stock of Cigars having been expended, I procured some to be made for me on the Island, out of native tobacco, many of which to my gratification and surprize I found of as high and as delicate a flavour as any which I had ever tasted direct from the Havanna. But the leaves of which these were formed, appeared to be accidentally larger and more ripe than they are generally gathered. Though as it is at present planted and prepared. Chedooba tobacco is highly prized.

No. 10, shews the soil from the neighbourhood of a petroleum well in this circle (Inrooma). Some time since it was destroyed by fire, since which the public claim it, but its produce is therefore nothing, though the soil is full of the oil

No. 11, represents the more sandy soil of the eastern circles. It was taken from the neighbourhood of Mengbreng. The circle of that name, with the one just noticed (Inrooma) are the most populous on the Island the greatest quantity of export rice being produced in these, and chiefly in this soil,—a more productive one than appearances would seem to warrant.

No. 12, is also a soil of the Mengbreng circle, and taken from a spot about 3 miles W. S. W. of the village of that name, and amid the jungle. It may not be put forward as a representative, though in the neighbourhood whence taken, it may be extensive. The largest trees were found on the lower grounds principally; the wild mangoe were found growing in this soil.

No. 13, from the Tangee, a circle and neighbourhood of the village of Tekkea, at the foot of the south peak, is again a soil peculiar as far as was observed. East and west of it the cultivated soils are represented by No. 2, while Nos. 3 and 4, perform the same office for the soils of the hills which are highest in this the southern circle of the Island.

No. 14, is a specimen of the most peculiar soil on Chedooba, taken from its only barren spot, the higher parts of its central hill.

No. 15, is not of Chedooba at all, but from its sort of dependency, Flat Island, separated from it by a narrow strait. It has been added from its great similarity to the stiff clay of No. 1, whose productive properties it may serve perhaps to illustrate.

It was taken from the centre of the Island where it had been under constant cultivation for more than one century, yielding an ample annual return. Every patch of available land on this Island is fully tilled, its centre, one continued rice ground.

Nodules of Iron ore, as in No. 16, will on search be found generally over the Island, either embedded in the greenish sandstone, or having been detached from it. Though often very rich, they are not in sufficient quantities to amount to valuable, nor am I of opinion that the ore in continuous beds will by any search be discovered.

No. 17, shews some fragments of copper ore, a few also of silver may be found, but both are confined to the surface of the volcanoes in the Island, and have been ejected by them from beneath. Even on these sites a strict search is necessary to detect them. I only heard of one piece of the size of two eggs having ever been found.

The 18th compartment shews specimens of a coal or lignite found in the northern parts of Tang-wa circle, and not a mile distant from the beach. It lies a few feet above the level of the watercourse formed between the first and second lines of hills, dipping deeply under the latter, which rise 800 or 1,000 feet above it. Its site is therefore I fear a very bad one; perhaps a matter of no great moment as its qualities I also fear partake of the same character. It is traceable in an east and west direction about 20 yards, the vein, 3 feet and a half thick, is a series of small layers from the 16th part of an inch to 3 inches in thickness, separated by their laminœ of ferruginous sand. It has been dug into by the natives, and perhaps two tons of it excavated, from which the specimens shewn were selected. On the spot, I could not make it ignite, it only smouldered.

No. 19, shews a specimen of the Petroleum of the wells of Krae-roue.

As it may not be considered a matter very foreign to the subject under notice, and is inserted in furtherance of the same view, that of, it may be, usefulness to any concerned. I venture to conclude with a slight notice of what I experienced of the climate of Chedooba in traversing it, throughout all parts from the beginning of January to the middle of March, 1841; a period which no doubt constituted, with the previous month of December, the healthiest time on the Arracan Coast, or at least when exposure to weather may best be borne by the European. As is the case in all countries subject to periodical rains, the time of commencement, and taking off of these, will also here be doubtless found the most unhealthy.

But previous to the arrival of the Monsoon, I think that, to all Europeans, exposure to the direct rays of the sun, (often done incautiously or unnecessarily) would be found almost a certain cause of illness, and this more particularly during the months of March, April, and May. when its heat is most violent. But exposure of the above sort must at all times, I think, be deemed highly imprudent, especially when the remedy of a chattah is so easily procured.

This effect may be constitutional and peculiar, but I am inclined to think, that any exercise in the climate of these parts requires for its support good generous food. In the 65th Regiment N. I., while on the coast for nearly two years, mortality from fever among the troops was fearful in amount, among the officers no case of fever occurred. I do attribute the contrast to the difference of living, in which the statement made to me by the Medical Officers and others of that Regiment seems to bear me out, viz., that the troops died from the consequences, more than the fever itself, that in spite of all cordial and strengthening food, and

medicines liberally administered, there was not stamina in their constitution to enable them to rally from the debilitating effects of the disease.

In the course of our duty in surveying along the coast, considerable exposure was necessarily made of the crew of the 'Childers.' On all such occasions it was as much as possible endeavoured to give the people extra food, and quinine was also administered, in fact, throughout the service, every exertion was made to procure as much and as great changes of diet as circumstances would permit. Up to this date, March 24th, twenty-seven cases of fever have occurred; (12th of May, 63) cases on board, all of the same debilitating nature; but, with the exception of one, under peculiar circumstances, which proved fatal, all were recovered, and in general at duty again in 7 days.

I believe that my own experience of the shore climate was far greater than that of any one else among us. But I have reason to be thankful that though occasionally unwell, I did not suffer from a headache throughout my whole visit.

Next to the two precautions which may be inferred from what has been said, viz. those of keeping from direct exposure to the sun; and a generous —not intemperate—diet. I would mention the necessity of watching and preparing for the great changes of temperature to which the climate is liable; while by day the lightest clothing was too heavy, by night it has been chill under two blankets and a counterpane. An hour before sunset this change takes place, and should always be met by a change to woollen clothing; last, not least, I mention the necessity of keeping a careful watch over the due and regular performance of the digestive functions. Under employment for mind and body, with the above cautions, viz. avoiding undue exposure; good—but temperate living; accommodation to changes of temperature; attention to regularity of digestion, I incline to think that Chedooba, if not Arracan generally, would be found not so fatal a climate to Europeans as has been hitherto supposed.

With regard to the effect of climate on the natives, I would observe firstly, that in the course of their employment for objects connected with the survey, there are few of the able bodied males on the Island whom I had not under personal observation. A small, but well made, active, intelligent race, most cheerful and enduring of fatigue (when obliged to it). In my journeying through the Island, at every village (and few if any were not visited) all ailments were made subjects of application for advice or medicine. These cases amounted to two of fever, one of dropsy, one of paralysis, one of blindness, and one of deformity of limbs. Three cases of fever also occurred among the native (Bengallee) attendants who were with me.

But it may be fair perhaps to increase the apparently small list, by the admission that there exists a disease to a considerable extent, to which the inhabitants of Chedooba are subject, and under which at every village we found perhaps many sufferers, women as well as men, but chiefly the latter; nor in any case though always coming forth to meet us, did it seem to be looked on by either the parties themselves, or their friends as a case on which to apply for commiseration or relief.

'Old age' is very prevalent on the Island, and but few of the villages of Chedooba but can produce more than one, often several, of their inhabitants labouring under the affection of four score years or upwards; many under such burthen, hale, almost vi orous, in mind and body. The party who informed me of the period taken for the clothing of the N. W. plain with verdure, and who had till 15 years old been in the habit of fishing over it, when under the Sea, with his father by name Pallaree, and living in the Inrooma circle, is generally looked on as the senior amongst these 'Appogee' (a respectful term of address to old people). He claimed to have run through 106 years, at which age he walked 12 or 13 miles in order to meet us, and on being disappointed then walked back again (not I believe the same day); when we did meet, it was after a walk of nearly two miles, when he was certainly in body, rather shakey, but after a short rest he recovered himself perfectly. His mind and memory were perfectly sound, as also his hearing, and sight, his speech very slow, but clear and distinct; not a tooth in his head was gone or apparently inclined to depart, and he was not only cheerful, but joking with all around. He ridiculed my not being so old as his great-grandson, who accompanied him, said that he had left off eating animal food but two years since, and when questioned as to what had been his customary food in ages by-gone, answered readily 'any thing even a part of a man if I had wanted it,' a confession which he only modified, to the laughter and remark of the party around, by adding 'if it had been given as medicine,' I know not whether it may be taken as evidence of the existence, to any considerable extent, of another interesting disease in Chedooba, to add that Pallaree, entered into the bonds of matrimony with his last wife 2 years ago.

(Sd.) C. P. Halsted,
Commander.

Report on the Soils brought from Chedooba, by H. M. S. 'CHILDERS.'
By the Officiating Curator, Mus. As. Sco.

The box of Soils and Minerals, brought by Capt. Halsted, having been referred to me for report, I take leave to subjoin the following remarks to Captain Halsted's very able notes. He has, most unfortunately, omitted to bring us specimens, of the different *rocks* as well as of the soils. It would have been highly desirable to have had a complete series of these, from the beach lines to the highest point, and in various directions, with as many shells and other organic remains, as could be found, and measurements of elevation; especially those of the 'old beach lines' alluded to by Captain Halsted. Such a series if it can be still obtained, would be of the greatest interest, for we have there an active volcano in the centre of an Island, upheavements going on on the Coast within the memory of man, and coal found; all within the space of a few miles! I need not say how valuable rocks and organic remains would be to illustrate all this.

In the absence of any geological data then my remarks must be mostly agronomical, as regards the soils, and mineralogical in regard to the minerals. I take them in the order in which Captain Halsted has numbered them.

No. 1. Of this little or nothing can be said in addition to Captain Halsted's remarks. The process of natural manuring, to which he alludes is not however, I should think, the sole cause of the fertility of the soils. It will be seen upon close inspection, particularly with a magnifier, that minute particles of carbonaceous matter are dispersed throughout the mass as if they had been originally deposited with the soil, by whatever process this was formed; the one described by Captain Halsted would scarcely we may suppose have distributed it so evenly, but a more extended examination on the spot, could alone entitle us to argue safely on the subject which is one of much importance. No 15, is a soil of the same kind, and it has also some, though a smaller, mixture of carbonaceous matter dispersed through it: both appear to be surface soils only.

No. 2 and 3, are more sandy. No. 3, seems to contain some carbonaceous matter also.

No. 4. Remarkably assimilates to the tea soils of Assam and China, in appearance! and like those of Assam this also occupies the higher spots. As the climate and population of Chedooba probably place tea out

of the question, as a product, I have not thought it worth while, to institute any closer examination.

No. 5. Contains, apparently, a portion of carbonaceous matter.

No. 6. Does not shew any trace of it.

No. 7. Is a very curious soil, if of any extent, on account of its locality in the neighbourhood of the petroleum wells. Captain Halsted does not say if these soils are fertile or barren, which it would be of interest to know; vegetable matter, in the shape of leaves and roots, abound in the specimen. As No. 14, is said to be 'the only barren spot' so that we may suppose this was not wanting in fertility. Nos. 10 and 12, much resemble No. 7. in appearance, though they are not so strongly impregnated with petroleum.

Nos. 8 and 9. As tobacco soils probably owe their superiority to the free peroxide of iron dispersed through them in veins and spots.

No. 11. Is identical with the best Georgian Sea Island cotton soil. I must refer here to my special report on this soil:

No. 13. Is remarkable as being the only soil which offers any sensible proportion of free calcareous matter in the shape of *debris* of shells; and here again we have to regret the want of the rocks, for these would have assisted us in forming a judgment as to whether the soils have been formed from their decomposition, or in horizontal beds and raised up with the Island. We have here a succession of strata through which the volcana may have forced its way without much disturbance? or which may have been raised up so as to shew its edges in overlying beds? Which should then correspond round the volcanic centre; or which may have been formed by the eruptions? All these are curious questions for investigation, and it is to be hoped will not long be left unexamined.

No. 14. 'The only barren spot on the Island' says Capt. Halsted 'being the highest part of the central hill,' I could not on examination detect any saline or acid impregnation in this soil, and I should take its barrenness, in the absence of any gaseous exhalations, which are no where noticed in the report, to be owing to the great quantity of peroxide of iron which it contains, so much indeed that it is almost a red ochre.

No. 15. I have already referred to above.

Minerals.

No. 16. Is sent as iron ore. It is merely composed of masses of amorphous iron pyrites, and wholly useless as an ore of iron.

No. 17. Is also unfortunately not copper ore, but cubical iron pyrites, containing no trace of copper, and quite valueless, unless it be abundant enough to smelt for its sulphur where fuel and labour are cheap. The mass of silver ore alluded to by Capt. H. was probably a lump of the white kind of pyrites.

The coal I should think promises well, judging from these specimens at the out-crop of a seam. It is bituminous, though not highly so, and I found also its Sp. Grav: to be 1-31, which is that of the best Burdwan coal.* Its appearance and the fracture of some of the specimens are also in its favour, but any opinion would be premature till we have samples from a greater depth.

The petroleum does not call for any remark.

H. PIDDINGTON.